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# USSR Report

AGRICULTURE

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27 JUNE 1986

## USSR REPORT

## AGRICULTURE

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### KRASNODAR OFFICIAL DISCUSSES WHEAT QUALITY MEASURES

Moscow SELSKOYE KHOZYAYSTVO ROSSII in Russian No 12, Dec 85 pp 39-41

[Article by V. Brazhnik, agricultural administration chief, Krasnodar Krayispolkom: "So that the Grain Grows Strong"]

[Text] For a long time our Kray has had a solid reputation as one of Russia's largest grain producers. However, together with further increases in gross production, improvements in grain quality have been and remain a most important strategic task. This is why we place special importance upon winter wheat, our main grain crop, accounting for about 70 percent of total procurement volume. The struggle for high quality winter wheat has a planned character in the kray. At the beginning of the 11th Five-Year Plan each rayon and farm was given taut targets for the procurement of strong and valuable [tsennaya] wheat. These targets took into consideration soil and climate conditions. A broad complex of technological and organizational measures directed towards assuring stable production of high quality wheat was deemed to be a sufficiently reliable guarantee of the targets' unconditional fulfillment. This complex includes improvements in the varietal structure of crops, the choice of predecessors, a scientifically based system for fertilizing soils and measures to protect crops from predators and diseases, reduce the time for harvest and post-harvest processing at farms, the precise organization of grain procurement, and material stimulation of collectives to meet targets for strong and high grade wheat deliveries to the state.

One hardly needs to explain how great is the dependence of quality upon variety. Even under the most favorable climatic conditions and the highest agrotechnical standards, weak varieties of grain are always of lower quality than are strong. Thanks to fruitful work by breeders, farms in the kray are supplied with sufficient amounts of strong varieties. These are the Bezostaya-1, Krasnodarskaya-57, Kolos, Polukarlikovaya-49, Istok, Zamena and Estafeta, bred by the Krasnodar Scientific Research Institute for Agriculture, the Obriy, created by scientists at the Odessa Selection-Genetics Institute, and the Yugoslavian Partizanka. In short, the number of strong varieties is large enough to serve as a basis for increasing the production of high quality grain, as it permits constant improvements in crop varietal composition.

In determining this composition, we not only take into account the yield of a variety, but also its ability to consistently form high quality grain under

specific conditions. Farming-biological characteristics and properties and production economic efficiency are also taken into consideration. During the 11th Five-Year Plan farms in the kray annually devoted up to 80 percent of total crop area to strong varieties of winter wheat. The plantings of Krasnodarskaya-57, Partizanka and Obriy have especially expanded.

Choosing a proper predecessor is equally important. In a whole series of cases it makes it possible to improve soil water conditions for winter wheat and create more favorable development conditions, especially in years with dry autumns and cold winters. In our kray the best predecessors for strong wheat are semi-permanent grasslands [plast] and turned over semi-permanent grasslands of perennial grasses, grain legumes, silage corn, sugar beets and castor bean plant; while in the northern zone they are ear crops grown on bastard fallow. It is precisely after such predecessors that we are attempting to locate all sown areas intended for obtaining high quality grain crops.

I want to especially mention the role of agrochemical measures in achieving stable and high results. This is mainly because evaluations of this specialized service's work must be based upon an objective view of the situation.

Scientific research results and farming practice convincingly show that just the application of mineral fertilizers, even increased doses, does not guarantee the main goal -- improved quality. Fertilizer applied during primary tillage does not so much influence harvest quality as it does quantity. Perhaps in other localities this dependence does not manifest itself so vividly as it does here in the Kuban, however, we cannot but notice it. Therefore, for a long time now, farms in the kray have been using a regional system for winter wheat fertilizer application developed by scientists at the Krasnodar NIISKh. It combines the main application with obligatory nitrogen top dressings at specific intervals. The doses vary, depending upon predecessors and moisture conditions during vegetative growth. This system permits the more effective use of fertilizer and makes the formation of high quality grain a more manageable process.

The decisive factor is a late nitrogen foliar top dressing. In recent years farms apply urea. As a rule this is done twice: first during the shooting and stem extension stage and then after ear formation. The solution consists of 65 kilograms of urea in 150 liters of water and is applied at a rate of 200 liters per hectare, which amounts to 30 kilograms of active ingredients per hectare. Specialists are guided by data from leaf diagnosis and strictly observe solution concentrations so as to avoid burning the plants.

As is known, grain quality suffers markedly from crop damage by pests and diseases. These include root rots, powdery mildew, rust, criocerids [piyavitsa] and herbaceous leafroller. In our kray the struggle against these pests is a very important task. As a rule, treatment for cinch bug coincides with foliar top dressing, permitting us to combine two operations. Thus, outlays are reduced and equipment usage rates improved.

However, as is said, growing a good crop is only half of the job. It must be properly harvested and stored. Therefore our grain growers harvest strong

wheats first. This makes it possible to minimize harvest losses and quality reductions due to grain overmaturing or excessive moisture.

We harvest wheat both by direct combining and the separate method, but the second technique is preferred. It permits us to begin threshing somewhat earlier and increases combine productivity through around the clock operation, as direct combining is impossible at night because of increased moisture. This is why the separate method as a rule accounts for at least two-thirds of total harvest work.

It is also important that grain arriving from each field be stored separately. Together with the flow line technology used at most farms, this gives additional economic benefits through sales of grain with better moisture and cleanliness indicators and through improvements in its processing properties and qualitative characteristics to levels for strong and valuable wheat.

As grain for ready shipment accumulates at kolkhoz and sovkhos storage areas, farm administrations invite workers from grain receiving enterprise laboratories to choose samples and make preliminary determinations of grain quality. Suppliers, representatives from rayon inspectorates for agricultural product purchase and quality participate in sample analysis. The results are registered in a special journal. If preliminary analysis shows that quality can be improved through additional cleaning, this is certainly done.

This procedure is an essential component of the system in operation in the kray under which all commercial wheat from kolkhozes and sovkhos is sent to elevators only according to agreed upon schedules calling for the daily reception of grain of a strictly determined type and quality. This helps grain receiving enterprises make up batches of uniform quality, reducing transport idle time during unloading and simplifying paperwork for accounts between elevators and farms.

The precise organization of high quality grain procurement is supported by special operational groups set up at each rayon and farm. These are made up of well trained and highly skilled workers. During procurement they are freed from other obligations.

Material stimuli play a major role in the system of measures directed at increasing the production and procurement of strong and valuable wheat. Material incentives funds formed every year from deductions from strong and valuable wheat sales are used for awarding bonuses to machinery operators, workers and kolkhoz farmers, as well as specialists and middle level managers at kolkhozes and sovkhos. Upon fulfillment of targets (this is a mandatory condition!) farm managers and chief specialists, workers at grain receiving enterprises and rayon inspectorates for agricultural product purchases and quality directly participating in grain production and procurement are given bonuses for their strong wheat sales. These bonuses come from the material incentives funds of rayon agro-industrial associations. Specialists at rayispolkom agricultural administrations and kray administrations are awarded bonuses from material incentives funds at kray agro-industrial associations.

Of course, it is impossible to produce high quality grain without appropriately trained specialists. So that workers in the large-tonnage professions will more successfully master progressive methods in growing high quality winter wheat, agroproms are systematically training and retraining specialists at kolkhozes, sovkhoses and grain receiving enterprises. It has become a tradition to annually conduct conference-seminars dedicated to grain quality problems. Now every grain grower in the Kuban has the needed knowledge in all the fine points of this important state matter.

Persistent work by the kray's party, soviet and agricultural organs to broadly introduce a complex of technological and organizational measures to improve grain quality has made it possible for farms in the kray to increase share of strong and valuable wheat delivered to the state to 73 percent of total procurements.

Good condition wheat is now grown in practically all rayons in the kray. This has become a measure of the art and professional mastery of Kuban grain growers.

The experience of farms in Timashevskiy Rayon is especially indicative in this regard. They always obtain high wheat yields. Unfortunately, however, in most cases this wheat does not have good baking qualities. During the 11th Five-Year Plan, steadily following the recommended set of measures, farms in the rayon sold the state 342,000 tons of strong wheat, including more than 100,000 this year. As a result, they obtained more than 2.3 million rubles in additional profits.

Farms in Bryukhovetsky, Kanevskiy, Ust-Labinskiy, Novokubanskiy and many other rayons are also making a large contribution to increasing strong wheat deliveries.

The production of strong and valuable wheat is not only a precise and laborious process, but also profitable. This year additional profits from the sales of high quality grain totaled more than 29 million rubles in the kray, and the figure since the five-year plan's beginning is 113 million. This is a major supplement to the resources needed for expanded reproduction of the Kuban's agriculture and has opened new potentials for increased intensification.

Now we have come to the main point. The final year of the 11th Five-Year Plan was a serious test for grain growers in the kray: for the first time we grew winter wheat by intensive technology on almost 500,000 hectares. It should be said that the test was passed. A 10 quintal per hectare average increase was obtained under extreme weather conditions. Some farms and rayons obtained even greater, one might say record growth in yields, reaching 15 and even 20 quintals per hectare. Practically all grain grown by intensive technology meets standard requirements for strong and valuable.

People have been successful. Next year the area devoted to winter wheat grown by intensive technology will increase to 1.1 million hectares; this is half of our total grain area. In other words, the first half of the new five-year plan, or more accurately, the strong and valuable wheat component, will be



grown with the latest achievements of agronomy. We view this as a very important step towards the final and complete switching of Kuban crop production to the rails of intensification.

This means that we have real possibilities of reaching new and higher goals in increasing production and simultaneously improving the quality of food grains. These goals will be attained. This is guaranteed by the experience acquired and the high creative fervor which characterizes activities by all kray agroprom organizations, specialists and all grain growers.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### FERTILIZER SHORTAGES HINDER STAVROPOL GRAIN GROWERS

Moscow SELSKAYA ZHIZN in Russian 5 Oct 85 p 2

[Article by N. Styazhkin, TASS: "As You Sow, So You Shall Reap"]

[Text] Winter crops in the Stavropol area were not planted on time because of sluggishness in the delivery of mineral fertilizers by a number of specialized production associations and enterprises. Thus, only about half of the demand for phosphorus pellets is now being met.

Among those who have let down the grain growers is the collective at the Krasnodarskiy Chemical Plant (in the town of Belorechensk). It was only able to ship 1,500 tons of a 4,490 ton ten month plan for shipping phosphorus containing fertilizers to the Stavropol area. In accordance with the sizable expansion in the area devoted to grain crops grown by intensive technology which is planned, this enterprise was given an additional target to produce 8,000 tons of liquid mixed fertilizers for the Stavropol growers. However, the Belorechensk workers, referring to raw material shortages, were unable to do this.

The Azot Production Association in Nevinnomyssk is among those in debt to the grain growers. It was also given a target to deliver kolkhozes and sovkhoses an additional 10,400 tons of powdered fertilizer, but so far has only been able to deliver one-third that figure. Chemical workers at the Silvinit Production Association in Perm Oblast failed to deliver the Kray more than 10,000 tons of fertilizer.

Experience shows that in the Stavropol area the winter fields are especially in need of top dressing with phosphorus. This is usually applied in the form of compound fertilizers. As they say, not what is needed, but what is sent. However, such fertilizers contain nitrogen. This component promotes the rapid development of grain plants and growth in vegetative mass, which reduces crops' winter resistance.

The bringing of discipline into the delivery of chemicals is an important reserve for further increases in grain harvests, improvements in grain quality and stabilization of average annual yields under frequently unfavorable weather conditions.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### SPRING FIELD OPERATIONS IN MOLDAVIAN SSR REVIEWED

Moscow SELSKAYA ZHIZN in Russian 13 Apr 85 p 1

[Article by N. Marfin, Moldavian SSR: "Emphasis On Quality"]

[Excerpts] The farmers of Moldavia, having completed their sowing of early grain crops, are now commencing work on their row crop plantations as they continue to tend their crops. The corn growers are following the example of leading workers as they join in the competition.

At the Kolkhoz imeni Lenin in Chadyr-Lungskiy Rayon, reequipped SZ-3.6 sowing machines have been moved out onto the fields for the sowing of peas. The standard disk coulters were removed from these machines and replaced by hoe coulters.

"Such modernized units" explained the brigade leader of a tractor-field crop production brigade and Hero of Socialist Labor Z.G. Paskalov, "make it possible to plant the seed in damp earth. And a factor which is of special importance: at the assigned depth."

That which we saw in Chadyr-Lungskiy and Kriulyanskiy rayons, reflects the overall situation throughout the republic. The winter crops are in good shape on a majority of the farms: this year, 200,000 hectares or two thirds of all of the wheat areas are being cultivated using the intensive technology.

This year, in all areas, reliable units -- redesigned grain sowing units, such as were mentioned earlier, were moved out onto the fields for the sowing of grain crops. The pea sowings on many farms were increased using such highly productive varieties as Neosypayushchiysya-1, Smaragd, Vengerskiy Shtambovyi and others. And the areas for the soybean variety Belkovoy Korolevy have been increased throughout the republic by more than twofold.

The principal grain forage crop -- corn -- has become an object for increasing attention. It must be sown for grain and silage purposes on one half million hectares. The introduction of the industrial technology made it possible during the past five-year plan to raise the grain corn yield by 12 quintals. But many reserves are still available. The differences in yields are great. Last year, such rayons as Grigoriopolskiy, Leovski, Rezinskiy and

Chernenkovskiy obtained 25-30 quintals of grain per hectare. It is rather alarming to note that in these and other rayons a firm foundation has not been established in behalf of the new harvest. The farmers in Grigoriopolskiy Rayon, for example, applied mineral fertilizer during the principal cultivation on only one tenth of the fields set aside for corn.

The republic can increase grain production considerably through improved utilization of its irrigated fields. It is still a case of not enough land being allocated for grain corn and in addition the yields from such use are low in a majority of the areas. In this same Grigoriopolskiy Rayon, 39 quintals of grain, or one fourth less than the average republic indicator, are being obtained from each of 2,215 hectares. The rayon's leaders refer to the difficulties encountered in developing the planned capabilities of reclaimed lands and also to the absence of expertise on the part of the machine operators. And in the process they forget to mention the experience accumulated nearby -- in the neighboring Slobodzeyskiy Rayon. At the Kolkhoz imeni Michurin in this rayon, over a period of a number of years, stable corn yields of 90-100 quintals per hectare were obtained over large areas.

The experience of this farm is extremely instructive. All of the machine operator-corn growers, land reclamation specialists and agrochemists at this kolkhoz are materially interested to an identical degree in obtaining high final results. And, quite properly, each hectare of grain corn furnishes the kolkhoz with up to 700 rubles of net income.

Unfortunately, this instructive experience is being disseminated to only a weak degree and not only among neighbors. In order to change this situation, greater persistence must be displayed by the scientific forces and specialists attached to the Plodorodiye NPO /scientific production association/ and Selkhozkhimiya. Each year they prepare technological programs for the cultivation of programmed yields of grain corn under irrigation conditions for dozens of farms and yet the programs are maintained on only a few of these farms.

In eliminating the shortcomings, the workers attached to the agroindustrial complex of Moldavia are fully resolved to carry out all spring field operations in a high quality manner, to achieve the guaranteed yields of grain, vegetables, sunflowers and fruit and to increase the deliveries of products to the state.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

SOUTHERN UKRAINE GRAIN CORN YIELDS DISCUSSED

Moscow SELSKAYA ZHIZN in Russian 20 Feb 86 p 3

Article by D. Motornyy, twice Hero of Socialist Labor, delegate to the 27th CPSU Congress and chairman of the Kolkhoz imeni Kirov in Kherson Oblast; A. Kulik, Hero of Socialist Labor and team leader at the Kakhovka Sovkhoz-Technical School in Kherson Oblast; N. Razinkin, team leader at the Pravda Kolkhoz in Tatarbunarskiy Rayon; V. Solodovskiy, team leader at the Rassvet Kolkhoz in Kiliyskiy Rayon; A. Mardar, Hero of Socialist Labor, laureate of the USSR State Prize and team leader at the Kolkhoz imeni Tatarbunarskoye Vosstaniye in Odessa Oblast; V. Krivorotov, Hero of Socialist Labor, delegate to the 27th CPSU Congress and chairman of the Order of Lenin Rossiya Kolkhoz; M. Osyka, team leader at the Kolkhoz imeni 21st CPSU Congress in Krasnogvardeyskiy Rayon in the Crimea Oblast and I. Polishchuk, team leader at the Pribugskiy Sovkhoz in Nikolayev Oblast, Ukrainian SSR: "For 100 Quintals of Grain Corn Per Hectare\_"/

Text In the documents which in a matter of several days will become the object of discussion during our party's 27th congress, important tasks are defined for our country's agroindustrial complex.

Reserves are available on each farm and especially in those areas where corn is being cultivated. By no means is full use being made of the potential offered by this crop.

We believe that under present conditions a yield of 100 quintals of grain corn from irrigated lands must be the norm for all kolkhozes and sovkhozes in the southern zone. Indeed, many farmers are obtaining such yields on a regular basis. Unfortunately, their initiative has not found wide support. Let us take the Crimean Oblast. It was not too long ago that more than 100 teams and mechanized detachments competed here for the purpose of achieving the 100 quintal goal and dozens of collectives succeeded. However, in recent years their number has continued to decrease. Last year, for example, only 13 teams obtained 100 or more quintals of grain per hectare.

The results achieved by leading collectives underscore the great reserves that are available in the Crimea for increasing the corn yields. Last year the team of I.P. Deyneko of the Elita Production Association obtained 111.7 quintals of grain per hectare and the team of V.S. Nikonorov of the Rossiya Kolkhoz in Krasnogvardeyskiy Rayon -- 107.9 quintals. The Kolkhoz imeni XXI Syezda KPSS in this same rayon annually obtains more than 80 quintals of corn per hectare from

irrigated lands. Last year this indicator was raised to 87.8 quintals. If all of the teams could reach the level of the leading establishments, the oblast would be able to fulfill its obligation of obtaining 250,000 tons of grain corn.

Experience has shown that unless proper attention is given to corn, it will be impossible to realize a sharp increase in the production of grain, especially forage grain. It was 10 years ago that the Kolkhoz imeni Kirov in Kherson Oblast first began concerning itself with corn grain. It has been planted on so-called companion fields, with 700 hectares of arable land being set aside for this purpose. And although the crops are irrigated on an irregular basis, nevertheless a yield of 70 or more quintals of grain per hectare is being obtained annually. On the average for the 11th Five-Year Plan, the kolkhoz obtained 77.8 quintals of corn from each hectare. And on those fields where the plants were watered 4-5 times last year, the yield amounted to 98 quintals.

Thanks to corn, the kolkhoz has practically solved the concentrate problem as a result of having established a facility for milled grain with a raised moisture content.

It was not too long ago that the specialists and many leaders in Kherson Oblast believed that it was impossible to obtain a grain yield of 80-100 quintals here, even from irrigated lands, owing to summer drought conditions. And for a long period of time there was not one team which came even close to reaching this goal. Today, in all rayons having irrigated land, such collectives do in fact exist! In 1985, 29 teams obtained more than 100 quintals of grain per hectare and 57 -- 80-100 quintals. The team of Hero of Socialist Labor A.I. Kulik of the Kakhovka Sovkhoz-Technical School obtained 116.2 quintals of corn from each of 189 hectares.

A great amount of experience in the growing of grain corn has been accumulated in Odessa Oblast. This year, all of the fields here have been assigned to 950 mechanized teams. The corn growers are presently completing a course of training in the agricultural schools. During the exercises, attention is being focused on the industrial technology for cultivating corn. Each collective has vowed to achieve a high yield for the 1st year of the 12th Five-Year Plan. In Kiliyskiy Rayon, 27 teams joined in a competition to obtain not less than 100 quintals of grain per hectare.

We have already noted that no other grain crop can compete against corn; its plantations contain a vast reserve which must be placed at the disposal of the five-year plan. Moreover, this does not require additional investments or an expansion of the area under crops. It is sufficient merely to eliminate the differences in yields and especially on irrigated lands. For it is here that we must obtain guaranteed high yields regardless of the weather. This goal has still not been achieved on a broad scale. Let us take Nikolayev Oblast. Last year, grain corn was grown here on more than 100,000 hectares, with slightly more than 22 quintals of grain being obtained from each hectare. Moreover, 30.6 quintals were obtained per irrigated hectare. At the same time, 45.6 quintals were obtained per hectare from irrigated lands in neighboring Kherson Oblast. In Nikolayev Oblast there is a whole series of rayons, for example Veselinovskiy, Bashtanskiy and Snigirevskiy, where the yields obtained from irrigated lands are no higher than those being obtained from dry valleys.

At the Promin Sovkhoz in Snigirevskiy Rayon, a record has been established for inefficient use of irrigated lands. Only 7.1 quintals of grain corn were obtained here from each of 690 hectares.

Such collectives are precisely the ones which are not utilizing the grain production reserves. It is at such kolkhozes and sovkhozes that no permanent master has been assigned to the corn fields and the collective contract is being ignored. In addition, the basic requirements of the agricultural practices are being violated. Quite often, the required fertilizer norm is not applied in behalf of the corn and the density of the plant stand not maintained. Irrigation and other agricultural methods are being carried out in an untimely and low quality manner.

The party has assigned the task, for carrying out in the near future, of converting all branches of the national economy over to the path of intensification and introducing scientific achievements and leading practice into operations on an extensive scale. Beyond any doubt, one element of intensification in farming is that of land reclamation. The state is investing considerable resources in each irrigated hectare. And it is counting upon receiving a high return. We are obligated to obtain high guaranteed yields from such fields. We must not blame our unfinished work on the weather.

Our collectives are joining in a competition and they are pledging themselves to obtaining, during the year of the 27th party congress, to obtain 100 quintals of grain corn per irrigated hectare and 50-60 -- from non-irrigated lands. This example should be followed by the corn growers in other regions of the country.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### WIDE-ROW METHOD FOR SOWING OF GRAIN CORN

Moscow SELSKAYA ZHIZN in Russian 26 Apr 86 p 1

/Article by N. Ivanchenko, Zaporozhye Oblast: "Wide-Row Method"/

/Text/ According to data supplied by posts of the meteorological service, the temperature of the soil at a depth of up to 10 centimeters, on farms in the rayons of Zaporozhye Oblast, has generally warmed up from 12 to 15 degrees. This signifies that corn can now be sown in all areas.

Using the so-called wide-row method, the grain growers are first of all planting in the ground the seed for those varieties which can be cultivated using the intensive technology. With this wide-row method, the rows are spaced 210 centimeters from one another. In other words, the number of rows on a field is reduced by three times. At the same time, the number of plants in the rows is increased to the same degree.

This is done in order to ensure, during the corn growing season, that the inter-row spacings are maintained in fallow condition. Cultivated in accordance with the bare fallow method, they later serve as very good predecessor crop arrangements for the winter crops. They are sown even prior to harvesting the corn itself. However, the ears are removed prior to the appearance of the wheat seedlings. The sowing of the winter crops is carried out using SZS-2.1 sowing machines.

A number of farms in Zaporozhye Oblast have for some time been employing a similar technology for the cultivation of corn. For example, it has already been in use for more than two dozen years at the Nogayskiy Sovkhoz-Technical School. But the present more accurate variation came here for the very first time last year from the Novoodesskiy State Strain Testing Station in Nikolayev Oblast, which is headed by the honored agronomist of the UkSSR and Candidate of Agricultural Sciences P.I. Shcherbak.

And immediately there was convincing confirmation of the high effectiveness of this technology. From fields on which wide-row sowing was employed, the kolkhozes imeni Frunze in Priazovskiy Rayon and Progress in Primorskiy Rayon and also the Volnoye Sovkhoz obtained from 41 to 50 quintals of grain corn per hectare. At the present time, the winter crops are shooting in a fine manner on these fields. At this same state strain testing station, from an experiment which lasted 19 years, the total yield in corn and winter wheat grain for each



two years amounted to an average of 73.9 quintals per hectare. From clean fallow fields, the yield was less by 19.1 quintals.

The oblast's farmers are boldly including in their work this important reserve for increasing the production of grain. According to preliminary plans, this year the farms will employ the wide-row method for sowing grain corn on approximately 30,000 hectares, or one sixth of the overall corn sowing area. In particular, the plans call for 2,500-3,000 hectares to be cultivated using the new technology at kolkhozes and sovkhozes in Akimovskiy, Berdyanskiy and Primorskiy rayons. By way of assisting the farmers, the oblast agroindustrial committee conducted a special seminar, with a demonstration of the technology directly out on the field, at the Zaporozhskiy Pedigree Poultry Sovkhoz-Reproducer in Tokmakskiy Rayon.

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CSO: 1824/313

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### BRIEFS

**100 QUINTAL CORN YIELDS**--Corn constitutes a strong reserve for augmenting the grain balance. Last year the per hectare yields of corn throughout the republic surpassed the winter wheat yields by 7 quintals. In the Crimea, the steppe regions of Tavriya and the Prichernomorye area, where there is an abundance of heat, light and adequate moisture in the regions of irrigation, this crop responded especially well to the concern shown for it. In Odessa Oblast, a group of leading workers in Kiliyskiy Rayon turned to the corn growers with an appeal to achieve a yield of 100 quintals. This initiative was supported by farmers in Tatarbunarskiy, Bolgradskiy and Izmailskiy rayons. Dozens of detachments which have undertaken to employ the contract and cost accounting procedures are diligently preparing their soil and laying in mineral fertilizer. The corn sowings in Kherson Oblast are being expanded to 170,000 hectares. Recently, in the Crimea, there has been a reduction in interest in this crop. Last year, a third of the farms obtained only 25 quintals of grain per hectare. This year the plans call for the yields from irrigated lands to be doubled. True, only a small amount of the irrigated plantations are set aside for corn -- 23,500 hectares. And it turns out that the field crop growers here are in no hurry to use non-irrigated land for this purpose. Meanwhile, valuable experience is readily available. The organs of administration for agroprom are strengthening their positions and earning respect. They are issuing fewer commands and auditing inspections are decreasing in number. It is felt that the specialists attached to agroindustrial associations and committees are imbued with genuine concern for achieving high final results. /Excerpt/ /Moscow PRAVDA in Russian 16 Apr 86 p 2/ 7026

**CORN SOWING PREPARATIONS**--The preparation of fields for the sowing of corn is underway in the Crimea. The oblast's farmers are cultivating this crop using the industrial technology and they are carrying out this work at a fine tempo. A great amount of attention is being given to the quality of the land cultivation work. /Text/ /Moscow SELSKAYA ZHIZN in Russian 11 Apr 86 p 1/ 7026

**REPUBLIC'S INTENSIVE FIELDS**--Moldavian SSR-- Against a background of foam-white apple orchards and rich green winter crops, the recently sown squares of cornfields stand out very clearly. The chief agronomist of the Mikautsy Sovkhoz P.S. Dorogoy, carefully rakes the soil in the rows while directing attention to the uniform manner in which the seed was sown. It was placed at an accurately computed depth. "During a spring of fine changes," smiles Pavel Sofronovich, "the machine operators leave fine autographs on each field." Truly, we toured a grain corn plantation of more than 200 hectares, cultivated

by the specialized team headed by A.K. Slobodzenko and in all areas we saw skilfully cultivated and sown fields. Last year, according to the chief specialist, Slobodzenko's team achieved record yields for the rayon and the republic in both corn and soybeans. This was promoted by a technological innovation. Both crops were grown on the same field using the strip method. The alternation of the crops -- high and low -- sharply intensified the photosynthesis process. A fine heat and air regime is created, more efficient use is made of the water and nutrients in the soil and in the final analysis the productivity of each hectare is raised considerably. The sowing of grain corn in Lazovskiy Rayon was completed on the eve of the spring holiday. "The busy harvest campaign on the corn plantations," stated the 1st secretary of the rayon party committee A.G. Zhdanov, "was carried out considerably more rapidly than last year. And it was not just the weather that helped out in this regard. An acceleration was realized mainly as a result of the extensive introduction of progressive methods." On one of the cornfields of the Kolkhoz imeni Michurin in Slobodzeyskiy Rayon, I met an old acquaintance, brigade leader Aleksandr Petrovich Petrenko. "In collaboration with scientists of the Plodorodiye NPO /scientific production association/ and APK /agroindustrial complex/ specialists," stated the brigade leader, "we are introducing programmed yields into operations on all of the grain corn tracts." More than 3,000 contractual mechanized brigades and teams have moved out onto the republic's intensive fields. This year, intensive technologies are being employed for growing corn, a large portion of the soybeans, sugar beets, sunflowers and vegetable crops on all 500,000 hectares. /by N. Marfin/  
/Text/ /Moscow SELSKAYA ZHIZN in Russian 4 May 86 p 1/ 7026

SEED FOR SOWING--Ordzhonikidze--Corn seed, the shipping of which has been completed by grading plants in the North Osetian ASSR, is ensuring high and stable fodder yields for the laying in of nutritious silage in various climatic zones throughout the country. In accordance with the agroprom requirements, 40,000 tons of seed were prepared. This amount is sufficient for sowing more than one and a half million hectares of fields. /Text/ /Moscow TRUD in Russian 13 Apr 86 p 1/ 7026

HYBRID SEED PREPARATION--Odessa--The collectives of corn grading plants in Odessa Oblast have completed their five-year task for the preparation of hybrid seed. A single conveyer line has been created here for the cultivation, preparation and shipping of this seed. During the current five-year plan, the country's farms obtained approximately 216,000 tons of this seed from the Prichernomorye area. Each year, 2-3 million hectares of plantations are planted using the seed grown here. /Text/ /Baku BAKINSKIY RABOCHIY in Russian 17 Nov 85 p 1/ 7026

GRAIN CORN SOWING COMMENCES--Simferopol--The mass sowing of corn for grain commenced yesterday in the Crimea. The present season is characterized by a widely deployed competition to obtain 100 quintal yields for this crop. Approximately 40,000 hectares have been set aside for the oblast's grain corn plantations. /Text/ /Moscow TRUD in Russian 18 Apr 86 p 1/ 7026

NEW TECHNOLOGY EMPLOYED--A technology employed earlier at corn processing plants for the chemical disinfection of seed and involving the use of sulphite-alcohol malt residue as an adhesive agent has not ensured the required sanitary-

hygienic norms for the carrying out of work. The search for more improved methods has led to the creation of a technology for disinfecting corn seed with the aid of film-forming agents. During production experiments which were started back in 1981, the principal technological regulations were worked out and these regulations subsequently formed the basis for a branch instruction. By the second year of the experiment, 69 corn processing plants of the RSFSR and the Ukrainian SSR had commenced mastering the new technology. Here, in behalf of the 1983 harvest, approximately 40,000 tons of corn seed were treated with film-forming agents. In 1984, the volume of such treatment work at plants increased to 90,000 tons and in 1985 it exceeded 300,000 tons.

/by G.O. Vorontsov, deputy chief of Glavzagotsemfond of the USSR Ministry of Grain Products and O.V. Iventyeva, chief technologist/ [Text] /Moscow ZASHCHITA RASTENIY in Russian No 2, Feb 86 p 11/ 7026

INTENSIVE TECHNOLOGY IN KRASNODAR--Winter wheat harvest completed in Kuban. Applying the experience of progressive farms and improving technology, farms in Krasnodar Kray plan to use intensive technology to grow grain on more than 1 million hectares of improved land, more than double the present figure. [Text] [Moscow PRAVDA in Russian 1 Aug 85 p 2] 11574

KUBAN GRAIN PROGRESS--Two campaigns, harvest and planting, are now seen on Kuban grain fields. Mechanized complexes at farms are harvesting corn and rice, while in the steppe zone wheat and barley are being planted. Progressive technology, which last year gave progressive farms yield increases of up to 1.5 tons, will be used on more than 1.3 million hectares, including 200,000 hectares of winter barley. [Text] [Moscow PRAVDA in Russian 16 Sep 85 p 2] 11574

KRASNODAR WINTER GRAIN CROPS--Growers are now preparing freed fields for winter grain crops. Kolkhozes and sovkhoses are devoting 1,300,000 hectares of improved land to intensive technology. All elements of intensive technology performed by unregulated links and brigades are being accepted by agroservices and quality posts. Their APK partners will help growers program yields. The manufacture of wide sweep sprayers and fertilizer applicators has begun at Selkhoztekhnika shops. [Text] [Moscow SELSKAYA ZHIZN in Russian 11 Aug 85 p1] 11574

STORM IN KRASNODAR--Early yesterday morning, inhabitants of the kray center and its suburbs were awakened by heavy thunder. This thunder went on almost continuously for about an hour, accompanied by deluge rain. Weather forecasters' explanation of lightning in December is that a mass of cold air entered the atmosphere over the North Caucasus, which had previously been warm and built up electrical charges in the clouds. [By Yu. Semenenko] [Text] [Moscow SELSKAYA ZHIZN in Russian 19 Dec 85 p 4] 11574

KUBAN WHEAT TILLERING--The warm weather and precipitation, which so pleased Kuban grain growers in December, caused renewed vegetative growth in winter crops. Over a large area plants are in the tillering stage. Trying to grow good harvests for next year, specialists, scientists and experienced practical workers are making careful observations of each field and taking measures to care for the crops. Thus, where there is not enough nitrogen, ground and aviation methods are used to apply it. Many farms use biological methods in

the struggle against rodents. Grain growers in Ust-Labinskiy, Timashevskiy, Dinskiy, Kanevskiy, Leningradskiy and other rayons are taking care of crops in an organized manner. [By Yu. Semenenko] [Text] [Moscow SELSKAYA ZHIZN in Russian 20 Dec 85 p 1] 11574

YEYSK FISHERMENS' CATCH--Fishermen here made use of the rare warm weather and went out on an early spring run in the Sea of Azov. Brigades at the Fishery Kolkhoz imeni Kirov were the first to deliver the famous Azov sea-roaches [Abramis vimba] to the Yeysk fish processing plant. [Text] [Moscow TRUD in Russian 2 Feb 86 p 1] 11574

WARM WEATHER IN KUBAN--It is warm in the Kuban. Using this favorable time, machinery operators have begun cultivating land devoted to spring crops. It is to be used for sugar beets, sunflowers and corn grown by intensive technology. [Text] [Moscow TRUD in Russian 5 Feb 86 p 1] 11574

ADDITIONAL GRAIN HARVESTED IN LIPETSK OBLAST--The restructuring of grain production on the basis of intensive crop production has made it possible for farms in Lipetsk Oblast to fulfill the plan for the sales of especially high quality wheat -- strong and valuable varieties -- long before the completion of harvest and to begin the delivery of additional grain. Thanks to the observation of the agronomic measures in intensive technology, each hectare yielded an additional 12-15 quintals, while in a number of places the harvest was doubled. [Text] [Moscow SELSKAYA ZHIZN in Russian 30 Aug 85 p 1] 11574

CLEAN FALLOW IN VORONEZH OBLAST--Grain growers at the Serp i Molot Kolkhoz were among the first in Bogucharskiy Rayon to complete tillage operations and begin the planting of winter grain crops. A. N. Bondarenko, the farm's chief agronomist, reported that use is now being made of intensive technology for growing winter grain crops. Mironovskaya-808 seed has been disinfected and treated with TUR [chlorocholine chloride]. It is planted mainly after clean fallow, on well fertilized fields. Voronezh grain growers have decided to plant 800,000 hectares to winter crops; intensive technology will be used on 40 percent of this. [By A. Katkalov] [Text] [Moscow SELSKAYA ZHIZN in Russian 1 Sep 85 p 1] 11574

AUTUMN FERTILIZER IN VORONEZH OBLAST--This year Voronezh grain growers are expanding the plowed area to 1,970,000 hectares. A sizable share of it has been plowed and growers are applying organic and mineral fertilizers. The leaders in competition are masters of deep plowing in Liskinskiy, Novokhoperskiy, Olkhovatskiy and Kashirskiy rayons, who have already done 80-90 percent of winter plowing. Machinery operators in Vorobevskiy Rayon, where plowing is almost complete, are the victors in the competition. [By A. Katkalov] [Text] [Moscow SELSKAYA ZHIZN in Russian 31 Oct 85 p 1] 11574

PLANTING PREPARATIONS IN VORONEZH OBLAST--Voronezh grain growers plan a 1.5 fold increase in the area on which intensive technology will be used. Last year each of 170,000 such hectares produced 8.5 quintals of winter wheat more than ordinary hectares. Now the intensive fields occupy 270,000 hectares. It is planned to obtain 40-45 quintals of winter wheat from each hectare. Yields might reach 50 quintals at some farms, for example, the Zavety Ilich in Ramonskiy Rayon. The crops followed clean, well fertilized fallow and peas. Serious preparations for spring are under way at farms: process flow charts are being compiled for winter wheat growing operations and extensive training

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of machinery operators is under way. [By A. Katkalov] [Text] [Moscow SELSKAYA ZHIZN in Russian 15 Feb 86 p 1] 11574

INTENSIVE TECHNOLOGY IN LIPETSK--In the struggle to increase grain production, growers at the Kolkhoz imeni Lenin in Zadonzkiy Rayon give an important role to winter grain crops grown by intensive technology. Upon the initiative of rayon organizations, all winter wheat grown by intensive technology -- almost 12,000 hectares, has been attached to links. [By G. Kolenchuk] [Text] [Moscow SELSKAYA ZHIZN in Russian 11 Mar 86 p 1] 11574

ORDZHONIKIDZE COOPERATORS' WORK--North Osetian cooperators have begun servicing machinery operators who are planting spring crops. More than 200 specially equipped mobile stores with goods in top demand are now arriving at scheduled spring planting work. [Text] [Moscow SELSKAYA ZHIZN in Russian 23 Mar 86 p 1] 11574

GROZNYI PLANTING PREPARATIONS--Checheno-Ingush grain growers have prepared for the planting of winter grain crops. Precisely according to schedule contract brigades and links have plowed and tilled the soil and procured the needed amounts of high class seed and mineral fertilizer. The majority of farms plan to complete planting in one or two weeks. [Text] [Moscow TRUD in Russian 8 Sep 85 p 1] 11574

SPRING WORK IN CHECHNO-INGUSH ASSR--Fields workers at the Krasnoye Znamya Kolkhoz have begun planting early spring crops. Other farms in Chechno-Ingushiya have also begun tightly scheduled spring work. Alfalfa, corn, rape, peas and other crops are being planted in Naurskiy and Shelkovskiy rayons. [Text] [Moscow TRUD in Russian 18 Mar 86 p 1] 11574

NORTH OSETIAN FIELD WORK BEGINS--Yesterday grain growers on farms in the steppe regions began field work. More than 200 mechanized units are levelling and disking fields and preserving moisture. Oats, peas and perennial grasses are being planted on massive areas warmed by the sun. [Text] [Moscow TRUD in Russian 18 Mar 86 p 1] 11574

STAVROPOL PLANTING PREPARATIONS--Yesterday machinery operators in the Stavropol steppe and piedmont areas began selective harrowing and cultivation of fields which had been prepared for spring crops last fall. The timely completion of these important agrotechnical measures will not only create favorable conditions for better seeding, but also protect the soil from freezing during minus temperatures at night and from drying out by winds during the day. [Text] [Moscow TRUD in Russian 20 Mar 86 p 1] 11574

STAVROPOL WORK BEGINS--Yesterday kolkhozes and sovkhoses in the Kray began the planting of early grain and pulse crops. [Text] [Moscow TRUD in Russian 22 Mar 86 p 1] 11574

LIPETSK GROWERS' PLANS--One of the main goals for the oblast's grain growers is to harvest 40 quintals from each of 200,000 hectares upon which intensive technology is used. [Excerpt] [Krasnodar SELSKIYE ZORI in Russian No 2, Feb 86 p 13] 11574

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## LIVESTOCK

### UKRAINIAN CATTLE BREEDING INSTITUTE'S WORK FAULTED

#### Shortcomings Detailed

Kiev SILSKI VISTI in Ukrainian 19 Mar 86 p 2

[Article by SILSKI VISTI special correspondent M. Lysenko: "A Golden Cow for a Copper Penny, or Concerning a Glaring Complacency at the Ukrainian Scientific Research Institute for Cattle Breeding and Artificial Insemination"]

[Text] Here is a letter from Borispolskiy Rayon, Kiev Oblast: "Sirs! The experience and know-how of leading farms are well publicized in your newspaper. This could also be the case with our Oleksandrivka experimental research farm. We possess all the requirements: conscientious people, highly-productive pedigree cattle, and modern livestock facilities. The only thing lacking is order, and it makes you want to cry. Particularly embittering is the fact that efforts and outlays come to naught. The operation purchased approximately 400 imported cows and heifers, for which the state paid hard currency. Within a fairly short period of time almost all of them had been slaughtered for beef. More than 100 head of select Soviet stock were purchased, and many of these experienced the same fate.

"The experimental farm is located adjacent to the institute, for which it serves as a main scientific and practical research facility, but in the 10 years the stock breeding scientific center has been in existence, many of its staff have never even put in an appearance at our livestock units. And some of those who do show up cause nothing but harm by their negligence and complacency. As a result the farm is sliding in performance. In 1983 82 calves were produced from 100 cows, 71 in 1984, and 65 in 1985...."

The following is the reply from the Kiev Oblast People's Control Committee: "Letters of similar content from the Oleksandrivka experimental farm have repeatedly been verified by rayon, oblast, and republic agricultural agencies.

"A total of 369 head of imported cattle have been culled out of the herd and sent to the slaughterhouse as a result of irresponsible care and poor feeding of livestock, as well as errors of omission in selective breeding activities. In 1985 159 cows, or 18.5 percent of the total number, failed to bear calves due to gynecological ailments.

"An inspection established that last year the servicing period averaged 101 days for 239 cows (optimal period -- 2 months), which was one of the reasons for the low rate of calving.

"Considerable harm is being done to the farm by embryo transplantation experiments being conducted by the Ukrainian Scientific Research Institute for Cattle Breeding and Artificial Insemination. Embryo transplantation is an insufficiently studied area, and various hormonal treatments of donor cows sharply diminish their productivity, which leads to culling out and dispatch of these animals to the slaughterhouse. Last year 46 cows failed to bear calves due to various ailments connected with complications following embryo washing and transplant...."

"All that is correct," stated institute director Professor V. Yu. Nedava when shown the above-quoted document. "With one thing I cannot agree: the matter of harm caused by transplantation. This matter is of great significance to the economy, and for this reason it is one of our principal research areas."

The professor further emphasized that the institute's research area is quite broad and that the team he heads is handling the research tasks fairly successfully. This can even be seen, stated V. Yu. Nedava, from articles published in the journal ZHIVOTNOVODSTVO [Animal Husbandry] -- issue No 2 of this year contains an entire selection of articles authored by institute staff members.

This selection begins with an article by Volodymyr Yukhymovych himself. We read: "...The institute has become a scientific-methodological center for the selective breeding and reproduction of cattle in the Ukrainian SSR. Its cadre potential is currently represented by a staff of 212, including 4 doctors and 63 candidates of sciences. The institute organization includes 11 laboratories and a branch school for advanced studies for specialists in livestock breeding and development of purebred stock."

Other materials in the selection are written in like vein.

Candidates of Biological Sciences M. F. Pavlychenko and V. I. Shevchenko, and Candidate of Agricultural Sciences V. P. Lukash: "...The requisite base facility has been established for the breeding of beef cattle. Work has entered the completion stage."

Doctor of Agricultural Sciences V. I. Vlasov: "A beef cattle selective breeding program algorithm has been developed for the first time, and a method of preparing input parameters has been devised."

We could go on quoting from these articles, but we keep thinking back to what the director said about Oleksandrivka -- "it is entirely correct." That is, it is correct that cattle purchased with hard currency, having failed to produce the anticipated effect, for the sake of which it was bought in the first place, was sent to the slaughterhouse, and that last year 303 of 858 cows failed to calve on an experimental research farm which is supposed to be a model in all respects -- in this instance embryo transplantation is not bringing joy but great misfortune: in the last 5 years, we were told by V. M.



Vova, director of Oleksandrivka, hundreds of high-yield cows and an equal number of heifers failing to bear have been culled out of the herd and sent off to the slaughterhouse, for the most part due to transplantation. And for the most part these are the progeny of cattle purchased for gold. Why are we selling them for a copper penny? And it is easy to see that this is indeed the case, adding together the cost of importation, outlays on keeping and feeding the cattle, and the cost of the dairy operation -- more than 3 million rubles, constructed for the purpose of creating suitable conditions for very valuable animals, adding to this numerous other expenditures, and comparing the aggregate total outlays with the results: prior to changing Oleksandrivka over to the status of an experimental research farm they were producing milk yields, we were told by A. P. Zozulya, first secretary of the Borispol city party committee, of more than 5,000 kilograms of milk per cow, while last year's figure was 4,170 kilograms. In a period of three years -- 1983, 1984, and 1985 -- embryos were taken from 154 cows and transplanted to 153. A total of 4 calves were obtained by this method, but the institute does not know how many of these actually survived. Our thanks to V. M. Vova, director of the experimental research farm, who clarified matters for us: three were culled for health reasons, with one still surviving. This one measly calf actually produced in 3 years of activities by the scientific center can also be called a golden calf without fear of exaggeration, especially if one considers that every year the state allocates 1 million rubles to keep the institute going.

"Things could not be any different in view of the situation at the institute," was the comment at the city party committee in response to these facts and figures. "Ever since the people at the institute have been devoting less time to science than to various quarrels and settling personal accounts. Recently dozens of various commissions have visited the institute for this reason. Could they be really up to mastering the art of transplantation and performance of other tasks, especially bringing proper order to the experimental research farm?"

We must agree with this assessment. But we must also note another truism: it is not enough to take note of deficiencies; they must be combated. Not in words, but with deeds.

Nor can the city party committee and other rayon agencies with jurisdiction in this area boast of accomplishing much. The fact is that the institute and its principal experimental research farm, situated literally at the very gates of the scientific center, constitute a single working family with common tasks and interests and with a common function -- to improve existing and to develop new types and breeds of dairy and beef cattle. Since the scientific center and its practical proving ground, so to speak, are a single, integral whole, why should there not be a single party organization here? It is the nucleus of the workforce, the main coordinating and indoctrinating force.

In this instance this force is obviously weakened: the institute and the experimental research farm each have their own party organization.

"We have thought about this," stated M. K. Ishchuk, city party committee agricultural department head. "A single, unified party organization would exert greater influence on the unified cohesiveness of the institute workforce

and creation of a productive microclimate, but would Oleksandrivka's contribution to the rayon's milk production not decrease?"

One can draw a conclusion from this: as far as the rayon leaders are concerned, Oleksandrivka is first and foremost an ordinary commercial farm, hence the level of attention paid to it by the institute: the main concern is milk production figures, not full return on effort by the scientific center and its subdivision. This position cannot be called correct party oversight. But wherever proper party agency oversight is lacking, orderly procedure is also lacking. This is confirmed by the institute's practical experience. In particular, it was elucidated at a meeting of the learned council held at the end of February of this year. For example, here is what Candidate of Agricultural Sciences V. P. Burgat, deputy director for scientific work, stated at this meeting: "The results achieved by the reproduction laboratory are quite substantial. Over a span of 5 years laboratory staff members defended one doctoral dissertation, two candidate dissertations, and authored two monographs."

But now let us address the facts. The above-mentioned dissertations and monographs discuss a subject which is indeed very important -- herd reproduction, improved herd health, and increased herd productivity. But we already know how all this looks in practice, first and foremost at the lead experimental research farm, which would be the basis of monographs and dissertations: 65 calves from 100 cows, numerous cases of gynecologic disease among the stock, as a result of which animals are culled out of the herd and sent to the slaughterhouse. Under these circumstances one can scarcely be gratified with theoretical accomplishments. Dissertations and monographs are unquestionably necessary items, but no less necessary is a substantial practical contribution by scientists to production, to our country's Food Program.

As is evident, however, the institute has its own point of view and arithmetic regarding this matter. We read in the above-mentioned article by institute director V. Yu. Nedava: "In 1985 alone, according to preliminary figures, a total of 29 research project results have been incorporated, generating savings in excess of 27 million rubles."

We shall not debate these figures with the professor; let us take a look at the research projects themselves. One of them is titled "Detector to Identify Cows in Estrus." This result of innovative research by institute learned secretary V. M. Voytenko and Candidate of Biological Sciences O. S. Spivakov is described as follows by the head of the reproduction laboratory, Candidate of Veterinary Sciences A. I. Bryzhko: "It consists of a compact miniature package in which a capsule with a dye, a thin foamed plastic liner strip and a bandage are placed layer by layer onto a cloth base. The detector is placed on a shaved area of skin between the sacrum and lumbus, on a cow 14-16 days after calving, or on a heifer which has reached breeding age. If a female with detector enters estrus and allows other females to mount her, the resulting pressure will crush the dye capsule, which will dye the foam plastic and bandage a bright color, readily visible from a distance."

We do not know how this discovery will affect the advance of agricultural science, but it does give us some pause. If they are talking about cows confined in barns, they are not free to move about, and therefore there can be no "mounting" going on. If we are talking about grazing cattle, is it beneficial to them to have their skin shaved between the sacrum and lumbus? The cattle flies are just waiting for such a chance. Also, is it not possible to notice "mounting" without a detector?

In that same selection of articles contained in the journal ZHIVOTNOVODSTVO we also read: "Pedigree stock farms are discovering high milk yield potential in black-brindled cattle. On the Ploskivskyy pedigree stock farm, for example, in 1984 the average milk yield was 6,192 kilograms, with a butterfat content of 3.69 percent...."

Perhaps it is not mere happenstance that the scientists cite this farm as an example: its performance results in this instance should be interpreted as a specific illustration of the effectiveness of the corresponding institute research project.

Just what do they essentially entail?

"The institute helps us draw up selective breeding schedules," replied P. F. Volokha, director of the Ploskivskyy Sovkhoz.

Drawing up a schedule certainly helps, but the main thing lies elsewhere -- executing what has been planned and scheduled. Here the farm makes do with its own resources. In addition, continued P. F. Volokha, in many areas they are forced to fumble around in the dark. To date they have failed to conduct needed laboratory research and study of feeds and blood. In other words they are failing to do that in which the scientific research institute with its 11 laboratories could and should give expert assistance. Under the circumstances, making reference to the farm's performance results as a practical illustration of the institute's scientific activities is very reminiscent of the story about the fly who, perched on the horns of an ox returning from plowing, boasted: "We really did a job of plowing!"

Petro Fedosiyovych Volokha also related how the so-called cold method of caring for young animals is being introduced on the farm he heads. The sovkhov's carpenters constructed an insulated portable wooden shed, in which the calves wintered over. None of them developed even so much as a cough.

The institute adopted this same method or, to state the matter more accurately, helped adopt it at Oleksandrivka in its own unique manner: it paid 10,000 rubles for the design development of plastic stalls, assigning this as a research topic for an entire year to one of its scientists -- Candidate of Agricultural Sciences M. S. Havrylenko who, with the assistance of colleagues, selected 11 of the finest male and female calves and placed them in plastic "domiciles" in the coldest subfreezing weather. The result: they managed to deliver four of the calves to the slaughterhouse while they were still alive, they buried four, while three are still walking around although, according to the farm's chief veterinarian, P. Yu. Maksimenko, there is little hope that they will pull through.

The following detail also speaks eloquently, indicating how dissemination of scientific information is handled at the institute, as well as the level of attention directed toward practical projects. The calves were kept out in subfreezing weather from 7 to 21 February, but learned secretary V. M. Voytenko, whose duties of course are not restricted to taking minutes at learned council meetings, learned the outcome of the experiment in mid-March from a SILSKI VISTI reporter.

At this point I should like to return to the response of the Kiev Oblast People's Control Committee mentioned at the beginning of this article. It contains the following statement: "Failed to establish instances of unconscientious attitude toward the assigned task on the part of institute scientific personnel."

We do not know in what direction committee deputy chairman M. A. Smakota, who signed the response statement, had been looking. We do know one thing for sure: a lack of integrity and deliberate deception will never benefit anybody. This point was emphasized at the 27th CPSU Congress, in the Political Report presented at the congress by CPSU Central Committee General Secretary Comrade M. S. Gorbachev. He stated in particular: "Measures are also being taken to step up work efforts at branch scientific research institutes and to increase their contribution toward accelerating scientific and technological advance. This process is proceeding intolerably slowly, however. Many institutes remain an appendage of the administrative edifice of their ministries, frequently perform the role of defenders of the ministry's narrow, parochial interests, and have become immersed in routinism and paper shuffling."

The people at the institute at Borispol and a number of other comrades should pay particular heed to these words and draw the proper conclusions without delay.

#### Central Committee Action

Kiev SILSKI VISTI in Ukrainian 22 Mar 86 p 1

[News item: "In the Ukrainian Communist Party Central Committee"]

[Text] In connection with the article "A Golden Cow for a Copper Penny," which appeared in the 19 March issue of the newspaper SILSKI VISTI, the Central Committee of the Ukrainian Communist Party has instructed the Collegium of UkSSR Gosagroprom and the Kiev Oblast Party Committee to look into the affairs of the Ukrainian Scientific Research Institute for Cattle Breeding and Artificial Insemination and its experimental research network, including the facts presented in the critical newspaper article, and to take measures to achieve a substantial improvement in the effectiveness of scientific research, to create a more healthy situation among the workforce, and to strengthen the institute's management and administration. Those persons guilty of serious deficiencies and mismanagement are to be held accountable.

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CSO: 1811/17

## LIVESTOCK

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### IMPLEMENTATION OF CENTRALIZED MILK TRANSPORT PRIORITY TASK

Moscow MOLOCHNAYA PROMYSHLENNOST in Russian No 5, May 86 pp 9-11

[Article by G. M. Pekhota, Department for the Production and Processing of Livestock Products of USSR Gosagroprom [not further identified]: "The Main Thing in Organizing Centralized Transport Is to Prepare the Farms"]

[Text] By decision of the May (1982) Plenum of the CPSU Central Committee dairy industry enterprises together with agro-industry associations must everywhere complete the conversion in 1990 of milk delivery directly right at the production site, and its transport by the purchasers' specialized motor vehicles.

To carry out this task integrated programs have been drawn up in the republics, oblasts, and rayons, which define specific amounts of centralized transport by year, the material-technical resources required, and the preparation of the farms. In the Ukrainian, Belorussian, Kazakh, and Moldavian republics 130 specialized automated farms have been set up. This involves specialized motor vehicles of Selkhoztekhnika [agricultural equipment association] and general-purpose vehicles.

In 1985, 41 percent of the milk delivered for processing was turned over right where it was produced. It was transported centrally from about 17,000 farms that have a milk sales plan, which is 39 percent of the total number. The volume of centralized transport has increased by a factor of 2.2, relative to 1980.

Experience has demonstrated the high effectiveness of this form of purchasing livestock products. It makes it possible to reduce farms' labor and material costs connected with milk delivery and losses of milk, improve the quality of raw milk and processed dairy products, and better utilize centralized motor transport.

According to the figures of the NII [scientific research institute] of the Economics of Agriculture, kolkhozes and sovkhozes will save 2 rubles, 30 kopecks per ton of milk, just by reducing the costs of delivering the product. In the 11th Five-Year Plan reduction in transportation and sales costs yielded an economic effect for kolkhozes and sovkhozes of more than 60 million rubles. Figured on the volume of purchases in 1990, it could exceed 250 million rubles.

The centralized transport of milk has been adopted most efficiently and rapidly in the Estonian SSR, where it was delivered in 1985 by the dairy industry right at 75 percent of the total number of farms. The proportion of the new forms of purchase are significant in the Moldavian SSR -- 61 percent, the Tajik SSR -- 66 percent, the Kirgiz SSR -- 54 percent, the Kazakh SSR -- 70 percent, and the Lithuanian SSR -- 45 percent; in several oblasts of the RSFSR (50 percent in Rostov Oblast, 61 percent in Novosibirsk Oblast, 78 percent in Tyumen Oblast, and more than 60 percent in Ryazan and Leningrad oblasts); and in oblasts of the Ukrainian SSR (75 percent in the Transcarpathian Oblast, and 85 percent in the Chernovtsy and Ivano-Frankovsk oblasts).

Centralized transport has been completed in Murmansk Oblast, in Stavropol and Khabarovsk krays, in Deglovskiy, Slonimskiy, Brestovitskiy, and Korelichskiy rayons of Grodno Oblast, in Orshanskiy Rayon of Vitebsk Oblast, in Pinskiy Rayon of Brest Oblast, in Brodovskiy, Drobylskiy, and Samborskiy rayons of Lvov Oblast, and elsewhere.

In 1984 the conversion of milk delivery at production sites was basically completed by enterprises in Belgorod Oblast. This required joint efforts by all the partners in the agro-industrial complex under the leadership of party and Soviet agencies to accomplish a large amount of work in a short time to prepare farms and industrial enterprises.

During the 11th Five-Year Plan the oblast built more than 250 central dairy kolkhozes and sovkhozes, laid 800 km of hard-surface roads on farms, and trained 400 operators and 350 repairmen for refrigerator equipment, and about 600 milk truck driver-deliverymen. All dairy plants installed additional receiving lines and expanded their equipment shops. Selkhoztekhnika took charge of equipment maintenance at all centralized dairy farms. From agricultural funding the dairy industry obtained the required number of milk tank trucks. More than 90 percent of the milk sold by kolkhozes and sovkhozes to the state is top grade and refrigerated. They earned an additional 31 million rubles for this in the 11th Five-Year Plan. Annual costs of transporting milk declined by 842,000 rubles.

However, in several union republics, oblasts, and krays the conversion to milk delivery right at the production site is taking place slowly. In 1985 the proportion of centralized transport at farms was 16 percent in the Turkmen SSR, 19 percent in the Uzbek SSR, and 21 percent in the Azerbaijan SSR. A serious lag has been allowed to develop in several oblasts, krays, and autonomous republics of the RSFSR.

The main reasons for this are not enough centralized motor transport and slow preparation of farms.

The main attention should now be directed to the preparation of farms. Hard-surface roads must be laid at livestock farms, and dairy units must be built and equipped with scales and with technological and refrigerating equipment for the primary processing of milk, and with instruments to determine its quality.

The battle against infectious diseases of the dairy herd must be stepped up on individual farms, since in several cases these have retarded the conversion to centralized transport (in several oblasts and rayons of the Kazakh SSR, the Tajik SSR, the Kirgiz SSR, and elsewhere).

Analysis has shown that 30,000 kolkhozes and sovkhoses, or 61 percent of the farms that sell milk to the state, are not ready to convert to the new procedures for milk delivery.

It is therefore essential to take steps to supply them in the 12th Five-Year Plan with the required amount of proper equipment and to prepare all farms to convert to centralized transport by the end of the five years.

Apart from that and no less important is the requirement for an additional 50,000 milk tank trucks and 410 million rubles of investment to pay for them and for building garages. The supply of garage and repair bases is now only 30 percent of what is needed.

One essential task is to improve centralized motor transport.

The enterprises of Minlegpishchemash [Ministry of Machine Building for Light and Food Industry and Household Appliances] is producing ATsPT-3.3 milk tank trucks with a capacity of 3,300 liters on a GAZ-53 truck body. This model basically meets the established requirements. However, it is manufactured without a trailer, which makes it difficult to rationally utilize trucks and drivers under the conditions of seasonal fluctuations in volumes of milk purchases and deliveries. What is needed is an inventory of trucks with an average capacity of 3-5 tons and trailer-tanks. This will reduce by about 30 percent the need for separate milk tank trucks and cut down the consumption of fuel and other resources.

Minlegpishchemash should start to develop a tractor trailer on the body of the GAZ-4301 diesel truck with trailer, which is slated for production, and also start production of semitrailer tanks averaging 6-7 tons for the ZIL-130B five-wheel tractor. New milk tank trucks should be equipped with meters and means for taking milk samples.

The use of these means of transport will make it possible to increase the efficiency of their operation, adopt the "shuttle" method of transporting milk by employing one trailer and two semitrailer tanks, and thereby to reduce loading and unloading downtime and labor costs.

Kolkhozes and sovkhoses that supply 50-200 tons of milk annually or 150-500 kg per day (mainly in the republics of Central Asia and the Transcaucasus) must be supplied with small-capacity equipment to refrigerate and store milk and to deliver it under refrigeration every other day.

A prerequisite for the conversion to direct links is the delivery of skim milk by the purchasers' transport. It now often happens, because farms lack conditions for washing milk tank trucks, that they ship this by their own transport at the same time that empty tanks are on the way back for milk. This cannot be

allowed.

The processes of delivering, receiving, and transporting milk can be considerably simplified and speeded up by using large-capacity scales and meters and instruments for determining its quality indicators.

Completing the conversion of all farms to the centralized transport of milk in the 12th Five-Year Plan is a large and responsible problem. It can and must be solved by uniting the efforts of all concerned organizations and enterprises of Gosagroprom.

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## REGIONAL DEVELOPMENT

### PARTY PROMOTES INTENSIVE AGRICULTURAL DEVELOPMENT IN LITHUANIA

Vilnius KOMMUNIST in Russian No 1, Jan 86 pp 41-47

[Article by Vitautas Simniskis, head of the Agriculture and Food Industry Department of the Central Committee of the Lithuanian Communist Party: "Party Attention to Intensive Technologies of Agricultural Production"]

[Text] The production and technical potential of kolkhozes, sovkhoses, and the entire agroindustrial complex of Soviet Lithuania is getting stronger year after year. At present the fixed productive capital of the agroindustrial complex comprises almost 47 percent of the fixed productive capital of the republic's national economy. During the years of the 11th Five-Year Plan alone the productive capital of kolkhozes, sovkhoses, other state farms, and interfarm enterprises increased by 34 percent and the extent of power equipment of agriculture, by 36 percent. All this brings about the growth of agricultural production.

In 1985 one agricultural worker produced 1.34 times more gross agricultural output than at the beginning of the five-year plan. On the whole, the assignments of the 11th Five-Year Plan were fulfilled successfully. Collectives of farmers fulfilled the plans for the sale of plant and livestock products to the state ahead of schedule. True, the amount of the grain crops gathered was slightly lower than planned, nor was it possible to overcome the lag in meat production that occurred during the first 2 years of the 11th Five-Year Plan. This should be kept in mind when analyzing the work of farming collectives during the 11th Five-Year Plan and, especially, when examining the plans envisaged in the draft of Basic Guidelines for the Economic and Social Development of the USSR for 1986-1990 and for the Period Until the Year 2000.

These are big and responsible plans. During the 12th Five-Year Plan, as compared with the preceding one, gross agricultural output will have to be increased by 14 to 16 percent. During the concluding year of the 12th Five-Year Plan we should thresh 4 million tons of grain and dig 2.5 million tons of potatoes. The production of meat (in carcass weight) should be brought up to 600,000 or 620,000 tons and of milk, up to 3.2 or 3.3 million tons. Therefore, it is necessary to rationally and efficiently utilize the existing production and technical potential, to systematically increase production

rates (during the 11th Five-Year Plan they were below the planned ones), and to utilize all available resources.

The decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving the Management of the Agroindustrial Complex" will be of great importance in the accomplishment of these tasks. The established Union and republic state agroindustrial committees represent an important forward step on the path of improvement in the planning and financing of agriculture and other sectors of the agroindustrial complex and their management at all levels as a single whole. The task of the republic agroindustrial committee is to refine the structure of the agroindustrial complex, to increase the yield on the basis of scientific and technical progress, and to develop and introduce in all production links intensive technologies ensuring the necessary productivity of fields and farms.

At the conference of the most active members of the Party economic organization held in Tselinograd in September 1985, Mikhail Sergeyevich Gorbachev, general secretary of the CPSU Central Committee, stressed the importance and significance of intensification of the production of agricultural products. At the same time, he noted that during the 12th Five-Year Plan priority should be given to the cultivation of grain crops on the basis of intensive technologies.

In our republic an increase in the production of grain crops is one of the most important and urgent problems. More than one-half of all the sown areas are occupied with grain crops in our republic. However, harvests are still low in many places. Party bodies and primary party organizations of farms should increase the demands on managers and specialists, who do not ensure a high standard of farming and technological discipline and do not show sufficient concern for an efficient utilization of land. There are farms that do not fulfill the plans for crop rotations and for the application of fertilizers and grow an insufficient amount of perennial and, especially, leguminous grass, although everyone has known for a long time that it is one of the basic conditions for an increase in the yield of grain crops.

In order to harvest more grain in 1986, in the fall of last year the republic's farmers began an extensive introduction of intensive technologies of cultivation of grain crops. A total of 400,000 hectares of winter wheat and rye have been sown. This work has been done carefully and thoughtfully in accordance with scientific recommendations. Now it is very important to ensure the proper care of crops during spring and summer periods and in the fall to gather the harvest without losses and at the optimum time. The care of grain crops cultivated according to intensive technology is the immediate concern of agronomical and agrochemical services. Party organizations must constantly control the performance of this work.

Specific experience in the intensive cultivation of sugar beets and flax was accumulated during the 11th Five-Year Plan. In 1985 almost two-thirds of these crops were cultivated according to intensive technologies. Undoubtedly, this contributed to the fact that the republic successfully fulfilled the plans for the production and sale of sugar beets and flax to the state. An intensive cultivation of these crops made it possible to gradually reduce the

areas assigned for them and to allocate more land for fodder crops. It seems that in the next few years it will be possible to obtain, on the average, 270 to 300 kg quintals of sugar beets and 5 quintals of flax fiber per hectare.

Feed is the initial point in the intensification and production of livestock products. Party organizations pay more and more attention to the strengthening of the feed base. This yields its fruits--the amount of procured hay and succulent feed is growing on farms every year.

In the republic during the 12th Five-Year Plan the production of all types of feed should increase to 11 million tons of feed units. This is the minimum task. On the instructions of the Central Committee of the Lithuanian Communist Party and the republic's government the program for feed production is being worked out and measures for its realization are being envisaged. Of course, first of all, we will have to intensify the cultivation of fodder crops, raise the yield of meadows and pastures, increase the areas under the most valuable perennial grass, and improve seed breeding work. It is also important to increase the capacities of feed storage facilities.

However, there are also problems. Although more and more feed is procured in accordance with advanced technologies, its quality is improving slowly. It is necessary to procure more hay and its high-grade substitutes. Insufficient attention is paid to mixed silage, yet it is an excellent substitute for concentrated feed. A great deal is being said about the fact that it is necessary to improve clover seed breeding. We will not be able to solve this problem until every farm has a highly productive apiary. The industry of the cultivation and harvesting of feed root crops should be better.

During the introduction of intensive technologies into plant growing it is very important to improve the work of agrochemical services significantly. However, some rayon party committees, obviously, pay insufficient attention to these organizations. Meanwhile, agrochemical organizations have a weak material and technical base at their disposal. Personnel turnover is high here. Kaunasskiy, Ignalinskiy, Mazheyskiy, Shvenchenskiy, Trakayskiy, and some other rayon party committees should pay special attention to these shortcomings.

It is necessary to constantly see to it that the efficiency of utilization of mineral and organic fertilizers is increased. There are many oversights in this matter. The bulk of the accumulated organic fertilizers is of a low quality, because there is a shortage of good manure storage facilities. Approximately three-fourth of the manure is litterless. There is not enough equipment for its application and filtering. Losses of mineral fertilizers are considerable, because proper attention is not paid to their storage.

Owing to the systematic work of the party and the government, enormous work on the drainage, irrigation, and cultivation of land, liming of acid soil, and performance of other operations aimed at increasing the yield has been done in the republic. At present more than 78 percent of the water-logged land has already been drained. There are rayons and farms, where these operations have already been or are being completed. New milestones in reclamation-construction work were envisaged by the October (1984) Plenum of the CPSU

Central Committee. At present we must primarily be concerned with the quality of reclamation work, because through the fault of planners and sometimes of reclamation specialists themselves some drained areas do not give the expected effect. The slightest inaccuracy does great damage in this work, negatively affecting the harvest. Primary party organizations of collectives of reclamation specialists should expand the movement for the quality of the reclaimed hectare. As in agricultural production, in reclamation construction it is necessary to widely introduce scientific achievements and modern methods of land drainage. We must begin the utilization of stronger materials as quickly as possible. It is necessary to more rapidly reconstruct obsolete reclamation systems and to more promptly eliminate defects at new projects, primarily at those where the cultivation of agricultural crops by intensive methods is envisaged.

Livestock breeders should work intensely during the 12th Five-Year Plan. The results of the 11th Five-Year Plan indicate that in the republic's animal husbandry there are positive shifts in the intensification of milk, meat, and egg production. The productivity of livestock increased and the quality of products improved. Large livestock breeding complexes and interfarm enterprises produce one-fourth of the milk and pork sold to the state.

However, it should be frankly admitted that more could have been done. Not all party organizations have been concerned systematically and purposefully with an increase in the production of livestock products. There are still many farms, where milk yields per cow do not exceed 3,000 kg annually and weight gains in hogs and in the fattening livestock are low. The oversights in animal husbandry were analyzed in the decree of the Central Committee of the Lithuanian Communist Party and of the Lithuanian SSR Council of Ministers on measures to improve the reproduction of the dairy herd and to increase its productivity. Unfortunately, not all rayon party committees paid proper attention to this decree and took efficient measures for the intensification of the production of livestock products. In this connection serious reproaches were directed at the Mazheyskiy Rayon Party Committee, its bureau, and managers of farms and primary rayon party organizations. The situation on some farms in Shilalskiy Rayon and on many others is not satisfactory. Rayon party committees and primary party organizations of farms should unite farmers more decisively, directing them toward the solution of problems concerning the intensification of animal husbandry.

We also expect much help from scientific workers. Sectorial scientific research institutes should complete the development of the system of intensive livestock fattening begun during the past five-year plan. It will ensure an average daily weight gain of more than 1,000 grams in cattle and will lower feed and labor expenditures on the production of 1 percent of beef. Scientific workers should ensure an improvement in existing lines of commercial types of hogs and in the new ones being introduced.

Work on an improvement in the herd of the Lithuanian black-and-white breed with the Holstein breed should be accelerated during the 12th Five-Year Plan. By 1990 the cows of this breed should comprise no less than 18 to 20 percent of the total herd. For the intensification of pork production it is necessary to apply industrial crossing. During the first 2 years of the 12th Five-Year

Plan it is necessary to introduce commercial broiler raising technology. The task of party organizations is to better organize work on animal husbandry complexes and farms and to lower direct labor expenditures per unit of output. It is necessary to more decisively mechanize and automate labor intensive operations and to do everything so that young people go into animal husbandry. Considerable opportunities for this exist. On most farms during the next 2 years it will be possible to introduce the flow-shop system of dairy herd reproduction and milk production, which facilitates work significantly and lowers labor expenditures on the production of 1 quintal of milk to 3 or 4 man-hours. It is very important to continue to search for ways of overall mechanization of previously built, nonstandard animal husbandry farms.

Party organizations must see to it that the new form of labor organization and wages--the collective contract--is more rapidly introduced in all animal husbandry subdivisions and that every farm worker is financially interested in final production results. It is necessary to introduce full cost accounting and to apply scientific achievements and advanced experience.

Livestock wintering is now the main concern of rural party organizations. Everything should be done so that milk yields and weight gains are not lowered during the winter period. This means that it is necessary to utilize feed economically and, at the same time, efficiently and to maintain proper order on farms and at complexes. Socialist competition for successful livestock wintering is expanding throughout the country. It is necessary to see to it that all the republic's livestock breeders, primarily party members, participate in it.

Science and scientific and technical progress are important conditions for the attainment of high results in agricultural production. The decrees of the CPSU Central Committee and of the Soviet Government constantly remind us of this. Scientific research institutes of agricultural specialization, higher educational institutions, and other scientific organizations in the republic have done considerable work on enhancing the role of science in production. A great deal of scientific research has been conducted and scientific recommendations have been developed. Many of them, introduced into technological cards, have become guides in the work of farm managers and specialists. Especially many measures have been developed and are being implemented in the matter of improvement in soil texture, fertilizer application, soil chemization, plant protection, and so forth. The task is to see to it that every recommendation is clear and specific and takes into consideration the achievements of science and the experience of advanced workers. Our climate is unstable. Therefore, every recommendation must envisage emergency technological solutions which make it possible to attain a production effect under any conditions, ensuring production stability.

Primary party organizations of scientific institutions carry out extensive work on the further integration of agricultural science and production. Party members at the Lithuanian Scientific Research Institute of Farming and its experimental farm managed by Vitautas Ruzgas, secretary of the party committee, deserve good words. The party committee pays much attention to the ideological-political education of scientific workers and to strengthening their relations with agricultural collectives. Urgent matters of political

and production work and problems concerning the acceleration of scientific and technical progress in agriculture are discussed at meetings of party organizations and party groups.

Party organizations of all scientific institutions should manifest great activity in all processes of scientific work--in planning, in research, in experimental work and, primarily, in the propaganda of scientific achievements. It is necessary to increase the responsibility of scientists for the effectiveness of recommendations.

It is very important to see to it that scientific recommendations promoting the solution of problems of agricultural production are utilized properly. Primary party organizations of scientific institutions, as well as of production collectives, should be concerned with this. It is necessary to direct the efforts of all collectives of the agroindustrial complex toward an improvement in breeding work and development of more productive, resistant, and evenly ripening varieties of grain and leguminous crops. We must strive for every farm to apply optimum overall technologies of cultivation of agricultural crops and feed procurement.

Is it really normal that grain crops are sown during a short period and harvesting drags out for 30 days and longer? As a result, harvest losses are considerable. True, there are farms which adhere to time-tested technology ensuring harvesting in a short period. However, on many farms labor processes are reflected poorly, the necessary correlation among the capacities of grain combines, the cubic content of warehouse premises, and the capacity of driers is absent, and there is a shortage of machine operators. All this hampers the operation of the harvesting conveyor.

Potato cultivation is transferred to intensive rails slowly. True, owing to the good work of managers, specialists, and party organizations, quite a good potato harvest--200 quintals per hectare and more--was obtained on some farms--however, only on some--during the concluding year of the 11th Five-Year Plan.

The introduction of intensive technologies of agricultural production and the acceleration of all scientific and technical progress are the daily concerns of party, trade union, and Komsomol organizations. They should maintain close relations with adjacent scientific research institutes, experimental stations, and other agricultural scientific institutions, and be constantly interested in and control how farmers and other collectives of the agroindustrial complex fulfill the assignments for the introduction of the achievements of science and new technology determined by national economic plans. The example of Utenskiy Rayon points to the consequences of insufficient attention to the transfer of agricultural production to the intensive path of development, to the introduction of the achievements of science and technology, and to an efficient utilization of material and labor resources. The rayon's kolkhozes and sovkhoses did not fulfill the assignments of the 11th Five-Year Plan for the production of grain crops and potatoes, annual meat production in the rayon decreased by 12 percent, as compared with the 10th Five-Year Plan, and the procurement of feed per standard head of livestock was 12 percent lower there than the average in the republic. This is discussed straightforwardly

in the decree of the 20th Plenum of the Central Committee of the Communist Party of Lithuania "On the Organizational and Political Work of the Utenskiy Rayon Party Committee on the Mobilization of Labor Collectives for an Appropriate Welcome to the 27th CPSU Congress." The duty of directing organizational and political work so that during the 12th Five-Year Plan the rayon's labor collectives mobilize all available potentials and actively refine methods of management was imposed on the Utenskiy Rayon Party Committee and on primary party organizations of farms. Other rayon party committees and all primary party organizations of farms should also thoroughly study the decree of the 20th Plenum of the Central Committee of the Lithuanian Communist Party.

Rayon party committees should pay more attention to the activity of experimental stations and experimental and support-model farms, give them greater organizational help, and see to it that these collectives become pioneers and propagandists of intensive technologies. As yet some support-model farms in the level of development and modernization of production do not meet their function.

In the search for more efficient methods of introduction of scientific achievements into production, rayon party committees jointly with collectives of scientific research institutes should systematically hold days of practical training in rayons and farms, during which agricultural specialists, machine operators, and livestock breeders could become acquainted with the latest scientific recommendations.

The draft of the new edition of the CPSU Program stresses that it is necessary to definitively transfer agriculture to the path of industrial development, to introduce scientific systems of management everywhere, to use land better, and to increase its yield. This is the demand of the times. The introduction of intensive technologies will largely depend on the extent to which party committees and primary party organizations are able to rally party members and collectives of the agroindustrial complex and direct them toward the realization of the tasks set.

In this work we must emulate the best farms. Such farms exist in every rayon. They include the Sotsialistiniskiy Kolkhoz in Plungeskiy Rayon, the Sovkhoz imeni 25 Syezda CPSU in Shilutskiy Rayon, the Ritu Aushra Kolkhoz in Kedaynskiy Rayon, the Draugas Kolkhoz in Radvilishkiy Rayon, and many others. On the republic's best farms there are overall systems of intensive production built on high technological discipline. All rayons should follow the example of the people of Kapsukas. The Kapsukas City Party Committee jointly with the rayon agroindustrial association and scientific research institutes of agricultural specialization are developing a unified program for the intensification of agriculture in the rayon for the 12th Five-Year Plan.

The intensification of agricultural production and introduction of advanced technologies require an increase in party demands on agricultural personnel. The importance of work with the personnel of the agroindustrial complex was stressed at the 18th Plenum of the Central Committee of the Lithuanian Communist Party held in 1985. Specific measures for the training

and improvement in the skills of managerial agricultural personnel were taken--a higher school for the management of the agroindustrial complex was established.

Serious attention must be paid to the training of mass trade personnel and medium-link specialists. Every farming collective received unified programs for technologies of intensive production of plant and livestock products, as well as directives as to how to organize workers' training in accordance with them. They should be utilized in the activity of schools of communist labor.

Basically, the tasks of collectives of farmers have been discussed up to now. Today, however, when a decisive turn to the planning and financing of the agroindustrial complex and to its management at all levels as a single whole has been made, when the republic agroindustrial committee begins its activity, the party organizations of all the collectives of the agroindustrial complex should review the directions in their work. To grow a big harvest and to produce many high-quality livestock products are some of the most important demands of the USSR Food Program. However, it is no less important to fully preserve all agricultural products, to deliver them to the consumer, and to avoid losses and spoilage during their transportation, processing, and storage. In other words, the path to losses must be blocked in all links. It is necessary to fully centralize the transportation of livestock products from farms and to significantly expand such an advanced form of sale of plant products as "field-consumer." City party committees should ensure a well-coordinated operation of food industry enterprises, fruit and vegetable associations, and planning, construction, and other contracting organizations concentrated in cities.

Farmers in Soviet Lithuania and all the workers of the agroindustrial complex have met the new--12th--Five-Year Plan with active labor and with great optimism. Fulfilling the adopted socialist obligations, farm managers, machine operators, and plant growers are working intensely. Realizing the importance and significance of the party guidance of the agroindustrial complex, party committees and bureaus and all party organizations are reorganizing their activity in a new way. This instills hope that the republic will fulfill all the assignments of the 12th Five-Year Plan honorably.

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## AGRO-ECONOMICS AND ORGANIZATION

### NEED TO IMPROVE APK STRUCTURING, ECONOMIC PLANNING IN UKRAINE

Kiev POD ZNAMENEM LENINIZMA in Russian No 3, Feb 86 pp 51-54

[Article by A. Onishchenko, corresponding member of the UkSSR Academy of Sciences: "Improving the APK Structure and Management System"]

[Text] The section which describes the party's economic strategy at the new stage is one of the basic sections in the draft new edition of the CPSU Program. Among other things it stresses the fact that further strengthening of the agro-industrial complex, enhancement of its effectiveness and complete satisfaction of the nation's needs for its products are an absolute condition for the nation's social and economic progress.

The APK is an extremely complex production-economic and socioeconomic system. The branches making it up are subdivided into three functional spheres (blocks): I. branches producing the means of production for all other branches of the complex; II. agriculture; and III. branches which procure, transport, store and process the agricultural products and deliver the finished product to the consumers.

Recent inadequate growth rates for agriculture's output were due to a significant degree to imbalance in the agroindustrial complex and disproportions in its structure. The main causes of the situation included the absence of a unified approach to management of the agroindustrial complex as an integral system, the predominance of the branch management principle and interdepartmental barriers.

The establishment of a single agency to manage the nation's agroindustrial complex (the USSR Gosagroprom), similar agencies in the republics and oblasts and rayon agroindustrial associations (RAPOs) was designed to eliminate departmental divisions in the implementation of individual stages in the production of food products and raw materials for light industry, to minimize losses of agricultural products and the finished consumer products made of them at all stages in the technological chain between the field and the consumer, to improve the quality of the products turned out by the complex and to successfully meet targets set in the Food Program.

The republic APKs, which include the agroindustrial complex of the UkSSR, one of the largest, are important components of the nation's agroindustrial complex. The UkSSR APK accounts for 21.1 percent of the total number of people employed in the nation's APK, for 18.8 percent of the value of fixed productive capital

and for 19 percent of the output volume. Within the republic's economy it accounted for 38.9 percent of the number of workers employed in 1983, for 37.4 percent of the fixed productive capital and for 40.8 percent of the gross output.

The functional structure of the republic's agroindustrial complex, like the nation's APK as a whole, is constantly being improved. The portion accounted for by the first sphere--that is, branches producing the means of production and providing services for agriculture and the branches processing its products--is growing by the year. The portion accounted for by the third sphere (with the exception of its portion of productive capital) is also increasing. This is making it possible to constantly strengthen and improve agriculture's material and technical base, to gradually convert all of its branches to an industrial basis, to introduce progressive technology on a broad scale and to build up the production capacities of branches in the third sphere of the complex, incorporating the achievements of scientific and technical progress.

The expediency of constantly increasing the portion accounted for by the third sphere of the APK stems from the need to sharply reduce losses of agricultural products at all stages of their movement from the field to the consumer (unfortunately, these losses are still great), to improve the quality and enlarge the assortment of finished consumer products, forms and methods of selling them.

The portion of agricultural output which undergoes industrial preparation or processing is growing every year and will continue to grow. Because of this attention should be directed toward a negative phenomenon: the specific portion of fixed productive capital accounted for the APK's third sphere has dropped, while its portion of the number of employees has risen. The specific portion accounted for by this sphere in the UkSSR's APK dropped from 22.7 percent during the years of the 8th Five-Year Plan to 22.1 percent during the period 1981-1983, while its portion of the number of employees grew from 17.8 to 25 percent. This demonstrates, in the first place, that proper attention was not given to building up the material and technical base for the third sphere of the UkSSR APK under the past five-year plan or the preceding one, and in the second place, that the capital-labor ratio in the branches of this sphere grew more slowly than in the other spheres of the complex, and this had to produce also lower rates of growth for the labor productivity of its workers.

According to figures from the Institute of Economics of the UkSSR Academy of Sciences the capital-labor ratio for the Ukraine's APK as a whole increased 2.9-fold during the period being discussed, while there was only a 2-fold increase for the third sphere; labor productivity in the complex grew 1.8-fold, while that of its third sphere increased only 1.5-fold.

The third sphere of the UkSSR agroindustrial complex, like that of the nation as a whole, is presently its most backward component. It does not provide for the prompt processing of agricultural products and raw materials as a result, and this gives rise to losses and a reduction in the output of finished consumer products. Large losses of products also occur in the transportation and storage process. Inadequate capital investments have until recently been allocated for the development of this sphere.

The situation which has developed, Comrade M.S. Gorbachev stated at a conference of the party and management aktiv in the city of Tselinograd, demands that we

find the necessary resources for accelerating the buildup and improvement of the material and technical base for storing, transporting and processing agricultural products and for achieving outstripping development for all branches in the third sphere of the agroindustrial complex.

Consequently, it is a vitally important task to perfect the structure of the agroindustrial complex, to improve its proportions and to accelerate the development of branches in the first and third spheres for purposes of steadily increasing agriculture's output, preventing losses, enlarging the assortment and improving the quality of the food products which are prepared. There was a reason for reflecting this task in the draft new edition of the CPSU Program.

In order to make the agroindustrial complex more effective it is also necessary to improve its management system. First of all, the effectiveness of the planning system must be enhanced. Specifically, we need to work out the methodology for planning for the APK as a unified whole, a methodology ensuring the balanced development of all branches and taking into account the expanding and intensifying links among them, their interdependence and mutual conditionality.

The draft new edition of the Program stresses the following: "Quality indicators reflecting the effectiveness with which resources are used must have a leading place in the plan...." With regard to this it should be noted that the existing system of planning, particularly in agriculture, the central element in the APK, is deficient in that the planned targets for increasing output and its procurement are not properly coordinated with the resources available to the farms, rayons and oblasts. These targets frequently vary in intensity. Experience has shown that targets which are either too high or too low make the struggle to meet them less effective.

The existing methods for coordinating plans for the production and procurement of agricultural products with available resources require extensive, sometimes complicated calculations. It is considerably easier to accomplish this if all types of agricultural resources are converted to a comparable form and summed up to arrive at a single resource provision indicator. Various methods have been proposed for correlating resources. The monetary valuation comparison is increasingly becoming the accepted method, however. It is based on the fact that agricultural resources are to a certain degree interchangeable. Furthermore, this interchangeability is actually put into effect.

Specifically, the gradual drop in manpower in the rural area is compensated for by an increase in the amount of capital available to the branch and a growth of the capital-labor ratio for the workers remaining in it. The reduction in the amount of agricultural land taking place in certain regions is compensated for by increasing production intensification on the remaining area. Among other ways, it is accomplished by making greater use of material and technical resources. With the proposed method, each unit of land (with quality taken into account) and manpower is assessed according to the material and technical means necessary to compensate for their removal from the reproductive process in agriculture.

Calculations made at the Institute of Economics of the UkSSR Academy of Sciences to determine the aggregate resource supply--that is, the resource potential--and its yield for republic oblasts during the 9th through 11th Five-Year Plans have

made it possible to establish, for one thing, the fact that the amount of manpower in the rural area is dropping by the year and that the amount of agricultural land is being reduced somewhat, the resource potential in the public sector of the republic's agriculture as a whole increased by almost 12 percent as a result of relatively high rates of growth of material and technical resources in the branch. In the second place, the oblasts differ significantly with respect to resource potential level (per hectare of agricultural land): the greatest potential was 1.6-fold greater than the lowest during the 11th Five-Year Plan. The forest-steppe oblasts, specifically Chernovtsy, Cherkassy and Kiev Oblasts, have the greatest resource potential. It is also high in Crimean Oblast and Transcarpathian Oblast (the land is poor in this oblast, but it has a good supply of manpower, material and technical resources). Voroshilovgrad, Nikolayev and Kirovograd Oblasts have the lowest potential.

In the third place, the yield per unit of resource potential grew by 4.7 percent during the 10th Five-Year Plan over the level for the 9th, while it dropped by 3.3 percent during 4 years of the 11th Five-Year Plan below the level for the 10th. The resource yield increased by only 1.2 percent for the entire period considered, however.

In the fourth place, oblasts in the forest-steppe zone get the greatest yield from their resource potential, while the low-lying wooded oblasts have the lowest (14.3 percent below that of the forest-steppe oblasts). Kiev Oblast has the highest yield, followed by Cherkassk, Poltava and Donetsk Oblasts, and Transcarpathian, Nikolayev, Odessa, Zhitomir and Kherson Oblasts have the lowest. The former produce agricultural yields per unit of resource potential which are 5.2-15.3 percent above the average for corresponding zones, while the latter have a yield 6.4-11.6 percent below the average.

The introduction of the indicator of aggregate resource supply (resource potential) into agricultural planning practices makes it possible, in addition to establishing equally intense product procurement targets, also to exactly assess the performance of the farms, rayons and oblasts and to determine the level at which their production potential is utilized. That is, this indicator becomes the basis for implementing the program demand that indicators "reflecting the effectiveness of resource utilization" be used in the planning.

Prices are one of the most important elements in the management system. The need "to improve pricing" is therefore rightly pointed out in the draft new edition of the Program. The problem of improving prices and rates involved in interbranch relations in the national economic complexes deserves particular attention.

The price system in the agroindustrial complex has recently undergone some significant changes. As of 1 January 1983 prices were increased for agricultural products and supplements established for the prices of products sold by farms operating at a low profit level and unprofitable farms operating under relatively poor conditions. This was done in order to eliminate the imbalance of prices which had gradually built up since the March 1965 Plenum of the CPSU Central Committee. Agriculture's profitability increased sharply as a result, amounting to almost 25 percent for kolkhozes and sovkhoses in the republic as a whole during the first year the new prices were in effect. The principles of economic self-sufficiency in relations between agriculture and industry, which had been impaired, were restored.

The factors (causes) destroying the established correlation of agricultural and industrial prices and producing a gradual drop in profitability for kolkhoz and sovkhos production have not yet been neutralized, however. The main cause is the uncoordinated movement of prices and the continuous growth of prices for industrial products sold to agriculture.

Taking advantage of the authority granted them to set prices for new products, the industrial ministries are gradually increasing the cost of a unit of consumer qualities in the means and objects of labor provided for agriculture. The cost of a unit of tractor and combine power and a unit of useful substance in fertilizer and feed continues to grow, and tractor repair outlays made per unit of power by the kolkhozes and sovkhos at state repair enterprises continue to rise. Prices for construction materials have increased in particular.

The basic cost of agricultural products is continuing to grow as a result, and agriculture's profitability has begun to drop once again. It fell by almost two points (from 24.8 to 22.9 percent) in our republic just in 1984. According to preliminary figures it dropped by approximately the same amount in 1985, and this is leading to a breakdown in the principles of economically self-sufficient management of the kolkhozes and sovkhos established at the May 1982 Plenum of the CPSU Central Committee.

Unfortunately, the continuing rise in the basic cost of agricultural products is caused not just by the increase in the prices of industrial means and objects of labor provided for the kolkhozes and sovkhos, although in 1983 and 1984 this factor accounted for almost two thirds of the increase in outlays per unit of agricultural output. These outlays are also increasing as a result of an increase in the amount of materials used in the production of agricultural products and the fact that wage growth rates are outstripping the growth of labor productivity. Because of this, the kolkhozes and sovkhos must give greater attention to revealing the causes of their inadequate growth of labor productivity and the increase in the quantity of materials used to turn out agricultural products.

Taking into account the dynamic nature of prices for the industrial products used by agriculture, the decree passed by the CPSU Central Committee and the USSR Council of Ministers, "On Improving Agriculture's Economic Relations With Other Sectors of the National Economy," in 1983 specifies that when the five-year plans for economic and social development are worked out, the level of profitability essential to agriculture must be substantiated and included in the plans, and procurement prices and the prices of industrial products sold to agriculture must be adjusted on the basis of this.

As the data cited above on the movement of agricultural production's profitability during the past 2 years show, however, agricultural and industrial prices must also be adjusted in the course of fulfilling the five-year plans. Otherwise, the profitability of the kolkhozes and sovkhos will drop by the end of the five-year plan at least to half the level set in the five-year plan, and the principles of economic self-sufficiency in the functioning of agricultural enterprises will be greatly impaired.

Considering the exceptional importance of the problem of ensuring coordinated price movement in the agroindustrial complex and in the other multibranch

national economic complexes, it would be expedient in the section of the second part of the draft new edition of the CPSU Program to add the following to the paragraph on the need to improve prices: "Give constant attention to the regulation of prices involved in interbranch relations in the national economic complexes, taking into account changes in production costs and the need to maintain balance in the development of the branches making up these complexes for purposes of achieving the best overall end results."

Coordinating the movement of prices in these complexes should help to strengthen the principles of economic self-sufficiency for management in all its components and consequently, to make the functioning of the complexes more effective.

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AGRO-ECONOMICS AND ORGANIZATION

RECOMMENDATIONS FOR AGRICULTURAL TRANSPORT IMPROVEMENT DETAILED

Moscow SELSKAYA ZHIZN in Russian 19 Apr 86 p 2

[Article by V. Karpochev, deputy chairman of Gorkiy Oblast Ispolkom: "Motor Vehicles at the Junction of Departments"]

[Text] In Pavlovskiy, Bogorodskiy, and Gorodetskiy rayons loading-trucking bases have been operating for 15 years now. They were created under enterprises of the RSFSR Ministry of Automotive Transport. They have set up comprehensive servicing of enterprises and organizations, kolkhozes and sovkhoses of the agroindustrial complex. The work experience of the leaders of these rayons, known as the "Pavlovskiy method," was approved by the RSFSR Council of Ministers several years ago. The essence of it is as follows. Enterprises and organizations transfer to the loading-trucking base all the stocks which come in on the railroad. The base, in accordance with a contract, independently carries out the accrediting [raskreditovka], sorting, storage, and delivery of loads to their destinations.

The advantages of this method are obvious. But they are felt especially by kolkhozes, sovkhoses, and other organizations belonging to the State Agro-industrial Association. Once the loading-trucking bases were created under the Pavlovskiy Production Association of Automotive Transport, the situation with organizing transport runs in the countryside sharply improved. Some 75 departmental warehouses and storage areas and dozens of motor vehicles and mechanisms became unnecessary, and hundreds of loaders, guards, and shipping clerks were no longer needed who had previously been on enterprise staffs. Large, highly mechanized warehouses were created adjoining the railway lines. Loads are delivered in a centralized fashion from the base to a great many clients at a time convenient for them and in full volumes.

Thus, farms, hospitals, children's establishments, schools, and commercial and consumer enterprises obtain fuel from there. Previously, in order to obtain their 3-5 tons of coal, it was necessary to hire various "wild" brigades of loaders and rent the transportation and mechanisms. Now farms are completely spared these pains. There is no need for them to have an entire season's worth of fuel or materials delivered at once and store them in their own buildings. It is sufficient to put in an order to the base dispatcher, and the load is delivered in the necessary quantity at the specified time.

Besides Pavlov, centralized deliveries of loads have been organized in Bogorodsk. A loading-trucking base has been created at Kozhevennoye station under the Bogorodskiy Production Association of Automotive Transport. Using the funds of several kolkhozes, sovkhozes, and industrial associations, warehouse buildings were constructed at this station, mechanization devices were obtained, and large tanks were set up for storing liquid fuel. Now, along with traditional loads, during the winter a great many boiler shops of nearby kolkhozes and sovkhozes, as well as workers' settlements, obtain fuel oil from there.

The geography of these loading-trucking bases is gradually expanding. In the Volga region, with the help of farms and also the industrial enterprises of Koverninskiy and Chkalovskiy rayons, the automotive transport enterprise of the Gorkiyavtotrans territorial association also created its own loading-trucking base. The motor transport workers [avtomobilisty] have saved farms from the necessity of dealing themselves with complex questions of obtaining and sending off loads by the railroad. Centralized delivery of loads from the railroad station has made it possible to reduce the prime cost of transportation by a factor of 4. The costs to create a loading-trucking base are recovered within the course of 2 years.

In essence, at the junction of paths of the railroad and motor vehicles there has appeared a large, highly mechanized transport-service enterprise whose proprietors are called motor transport workers. The work goes on here in a unified cycle on the basis of a "Friendly Agreement" between the motor transport workers, railroad workers, mechanics, and loaders. Their work is based on a brigade contract.

The creation of such bases has made it possible to reduce the idle time of motor vehicles to less than a fourth throughout the oblast as a whole, bring the level of mechanization of loading and trucking jobs from 34 to 92 percent, halve the idle time of railroad cars, free up a substantial quantity of loaders and vehicles, and save thousands of liters of standard fuel.

Generalizing on the existing experience of organizing transportation of loads by the Pavlovskiy method, the oblast drew up a program for improving the system of transport service of the entire agroindustrial complex. It was planned to create 18 loading-trucking bases (terminals) at key railroad stations and Lyskovo River port with complete, integrated transport service, and construct 29 trucking stations in rayons having no railroad stations.

Because the RSFSR Ministry of Automotive Transport is not able to create an individual motor transport enterprise in each rayon, it was decided to divide the spheres of operation: the RSFSR Ministry of Automotive Transport is creating such enterprises in 25 rayons, and the agroindustrial complex in 22 rayons.

Creation of a network of trucking transport bases at major railroad stations and in rayon centers will make it possible to minimize the nonloaded runs of motor vehicles. According to statistical data, currently only every other motor vehicle runs with a load in both directions, which is the equivalent of 5,000 motor vehicles going up to 200 kilometers empty. Almost 60,000 tons of fuel is consumed for these empty runs.



In order to gain control over fuller loading of motor vehicles, plans call for organizing an interdepartmental centralized dispatcher service with a network of rayon dispatchers. Control of the rolling stock of all enterprises and organizations, regardless of their departmental subordination, will be concentrated in one pair of hands. This will make it possible, without involving additional transportation, to raise the volume of loads delivered for agriculture by motor transport in general use by more than 9 million tons. The volume of loads transported at loading-trucking bases will increase by a factor of 3.7. The volumes of loads transported in containers will increase by a factor greater than 1.5, and the deliveries of organic fertilizers to fields of kolkhozes and sovkhozes of the oblast will double.

But there are still a few departments, including those belonging to the system of the State Agroindustrial Association, which have not yet realized all the advantages of such a transport service. We are waiting for more substantial help from them and participation in this work. For example, last year the Ministry of Automotive Transport allocated 1 million rubles for development and strengthening of the material-technical base of the motor vehicle enterprises of the Gorkiyavtotrans Association. But the USSR Ministry of Communications, RSFSR Ministry of the River Fleet, and USSR Ministry of Construction are still holding back from participating in this common cause.

One thing is clear: under the current conditions, while the country is undergoing great social and economic changes, improving transportation in the countryside and raising its effectiveness can only be done through combined efforts.

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## TILLING AND CROPPING TECHNOLOGY

UDC 63:54

### IMPORTANCE OF AGRO-CHEMICAL SUPPORT FOR GRAIN CROPS

Moscow KHIMIYA V SELSKOM KHOZYAYSTVE in Russian No 11, Nov 85 pp 11-14

Article by V.P. Soldatov, Candidate of Agricultural Sciences at Rosselkhozkhimiya, G.A. Titov, M.I. Tatarchenkov, P.V. Shkunov, A.A. Yukhnin, V.G. Sychev, candidates of agricultural sciences and I.I. Korotkova of the All-Russian Scientific-Research and Planning-Technological Institute for the Use of Chemical Processes in Agriculture and I.V. Bragin, Candidate of Agricultural Sciences at the Moscow Planning and Research Station for the Use of Chemical Processes "Effective Path for the Intensification of Farming"/

Text In the Russian Federation, extensive use has been made in agriculture of an all-round approach for utilizing chemical means for raising soil fertility. The KAKhOP [kompleksnoye agrokhimicheskoye okultirovaniye poley; all-round agrochemical cultivation of fields] has become a general trend in the work being performed by the agrochemical service and in 1984 it was employed on an area of 2.5 million hectares (in 1981 -- on 295,000 hectares).

This method for the all-round agrochemical cultivation of fields, developed by the VPNO of Rosselkhozkhimiya, is conditioned by objective factors. Within the republic there are 22.5 million hectares of land with signs of alkalinity, 33.2 percent of the soils have an acid reaction medium, 38.6 percent have a deficit of phosphorus and 9.7 percent -- potassium. Under conditions involving the use of increasing dosages of mineral fertilizers, a shortage of microelements is appearing to a greater degree among those factors which limit the yield levels for agricultural crops. According to data furnished by VNIPTIKhIM [All-Russian Scientific-Research and Planning Technological Institute for the Use of Chemical Processes in Agriculture], 67 percent of the soils require boron, 54 -- copper, 84 -- molybdenum, 96 -- cobalt, 52 -- manganese and 96 percent -- zinc. In order to raise the fertility of fields over a large area, the following must be carried out simultaneously: the reaction of the soil medium must be changed; the content of humus and nutrients (including microelements) must be raised or their ratio regulated; the weediness of fields must be lowered; the physical and biological properties of the arable, and at times the subsoil layers, must be improved. This scientific principle is the basis for the KAKhOP method.

The principal peculiarities of KAKhOP, as a method for raising soil fertility, include: the simultaneous use on the same field of several agrochemical measures which exert a multiple-factor effect on plant living conditions and

growth; applications of chemical means in dosages which will ensure the achievement of optimum indicators. All-round cultivation is first of all being carried out on low-fertility lands and this is making it possible to eliminate the diversity in field crop rotations in terms of fertility, to obtain additional increases in yields and to increase the fund of highly fertile lands.

The kolkhozes and sovkhozes, based upon the chemical resources available, define the KAKhOP volumes, indicate the fields and submit requests for their cultivation. The stations for the use of chemical processes inspect these fields and develop a complete complex of agrochemical operations. The planning and estimates documentation calls for the use, on a scientific basis, of complete norms for the chemical resources and also for a technology for carrying out the agrotechnical and agrochemical operations in conformity with the farming system. Fields subjected to all-round agrochemical cultivation are mentioned in the documents as a single object, with a guarantee passport being issued for achieving the prescribed parameters for soil fertility and for agricultural crop yields.

KAKhOP promotes an increase in labor productivity and the efficient use of the machine-tractor pool and it accelerates the schedules for carrying out the work. For example, an all-round brigade of the Selkhozkhimiya Rayon Association in Naro-Fominskiy Rayon in Moscow Oblast, assigned to the backward Voskhod Sovkhoz, provided assistance over a period of several years in achieving a yield of 45 quintals of feed units per hectare, compared to an average indicator for the rayon of 24.8 quintals per hectare and it subsequently was listed among the leading brigades. On 20 fields which were inspected on a random basis, following the carrying out of all-round improvements, a sharp reduction in acidity was noted (pH was raised from 4.0-4.7 to 5.6-6.0) and there was a noticeable trend towards growth in the content of humus, phosphorus and potassium. As a result, during the period from 1980 to 1984, the root crop yield increased from 220 to 815 quintals per hectare, corn for fodder -- from 179 to 527 quintals per hectare and the potato, perennial grass and grain crop yields increased by twofold.

Field-laboratory control over a change in soil fertility, organized in all areas by planning-research stations for the use of chemical processes, has shown that all-round agrochemical cultivation, with use being made of computed dosages of fertilizer and ameliorants, makes it possible to raise the nutrient content to the assigned level. Thus, at the Kolkhoz imeni Karl Marks in Kurskiy Rayon in Kursk Oblast, following a per hectare application of 50 tons of farmyard manure, 286 kilograms of phosphorite meal active agent, 60 kilograms of potassium salt active agent and 4.1 tons of lime, the content of mobile phosphorus in the soil increased from 79 to 135 milligrams per kilogram, exchangeable potassium -- from 54 to 113 milligrams and pH -- from 4.4 to 5.8 and this conforms to the accounting data. All of this made it possible to double almost the winter wheat yield (from 18 to 35 quintals per hectare). Similar results were obtained at the Kolkhoz imeni Kuybyshev in Ilishevskiy Rayon in the Bashkir ASSR, at the Svoboda Kolkhoz in Volovski Rayon in Lipetsk Oblast, at the Progress Kolkhoz in Bondarevskiy Rayon in Tambov Oblast and many others.

When use is made of all-round agrochemical cultivation, all measures are distinguished by a prolonged positive effect on the conditions for plant growth

and development. For example, in Semilukskiy Rayon in Voronezh Oblast, during the first year following cultivation, an increase in winter wheat yield of 18.3 quintals per hectare was obtained compared to a controlled strip (without KAKhOP) and during the second year the increase in sugar beets amounted to 69.1 quintals per hectare. On a test plot of the Shushenskiy Sovkhoz in Krasnoyarsk Kray, an increase in grain crop yield during the first year of 31.1 and during the second year of 16.4 quintals per hectare was achieved on the basis of hauling in soil together with agrochemical cultivation. There was an increase of more than 9 quintals per hectare in the residual effect yield for spring wheat at the Kolkhoz imeni Kuybyshev in Sverdlovsk Oblast and at the Kolkhoz imeni Lenin in the Mordovian ASSR (data of stations for the use of chemical processes for 1982-1983).

In 1981-1984, the area of fields having a low fertility which underwent all-round cultivation amounted to 6.3 million hectares and this had a considerable effect with regard to increasing the field crop husbandry yields.

On the average for the RSFSR (1982-1984), the winter rye yields on cultivated fields, when KAKhOP was employed and compared to the usual system, were raised by 4.5 quintals per hectare, winter wheat -- by 8.4, spring wheat -- by 6.3, barley -- by 4.9 quintals per hectare and the yields of row crops (potatoes, corn and annual grasses) increased by 20-30 percent.

All-round agrochemical cultivation involves considerable expenditures: depending upon the type of work and the dosages for the chemical resources employed, they can amount to 200-300 or more rubles per hectare.

On farms having a high culture of farming, the grain crop yields following the use of KAKhOP can reach 30-40 quintals per hectare, sugar beets -- 300-500 quintals per hectare and this makes it possible to cover the expenses for cultivation over a period of 1-3 years. This is apparent when we use as an example the repayment, in the form of the harvest, for mineral fertilizer employed. On leading farms it reaches the norm or exceeds it to a considerable degree as a result of a multiple-factor positive effect which was not taken into account in the norm. Thus, in 1984, at the Lareshchnikovo OPKh /experimental model farm/ in Novgorod Oblast, the winter rye yield following KAKhOP was raised by 15.4 quintals per hectare and amounted to 40.4 quintals per hectare.

From an economic standpoint, on fields on which KAKhOP was carried out the farms should ideally plant crops which are cultivated using the industrial technology (corn, sugar beets, potatoes) or grain crops using the intensive technology, since here the plans call for the extensive use of plant protective agents, growth regulators, intensive varieties which respond actively to rich soil, the timely and high quality carrying out of agrotechnical operations, diagnosing the status of mineral nutrition and, based upon its results, organizing top dressings for the purpose of achieving balanced nutrition. All of this tends to ensure a high level of effectiveness for resources invested in KAKhOP. In 1985, of 5 million hectares of arable land, winter grain crops were sown using the intensive technology on 1 million hectares on which KAKhOP had been carried out and spring grain crops -- on more than 420,000 hectares.

The new method is being introduced into operations on an extensive scale in Voronezh, Vladimir and Gorkiy oblasts and in the Tatar, Bashkir, Chuvash, Mari and Mordovian ASSR's, where the KAKhOP volumes reach 50,000-100,000 and more hectares annually.

The Rosselkhozkhimiya Association is carrying out a great amount of work in connection with further improving and introducing into operations the system for all-round agrochemical cultivation of kolkhoz and sovkhoz fields. Standard models have been developed by zones for the planning and estimates documentation, with the possibility of preparing them with the aid of electronic computers being taken into account. The working out of technological plans for KAKhOP is nearing completion, plans which take into account the peculiarities of the farming systems, rating and card indexing systems are being introduced into operations and improvements are being implemented in the system of author supervision over the quality of fulfillment of plans by the stations for the use of chemical processes. A great amount of attention is being given to instructing workers in the KAKhOP methodology and technology. Fourteen seminar-conferences were conducted over a period of 3 years on the subject of leading experience and specialist training. A network of experimental fields is being created for working out the KAKhOP technology and the normative expenditures for chemical resources and the economic effectiveness of all-round cultivation is being determined. For example, in the Bashkir ASSR, several experimental fields have been created for this purpose in the principal soil-climatic zones of the republic.

The potential opportunities afforded by the new method are still not being utilized adequately. This applies first of all to the KAKhOP volumes, which amount to approximately 15 percent of the fallow fields.

A great amount of attention should be given to the use as organic fertilizer of lignin, sapropel, the sediment from sewage water, domestic waste products and straw (especially on tracts troubled by water erosion).

In the North Caucasus, southern Urals, the Volga area and other regions having small organic fertilizer production volumes, where more than 200 kilograms of mineral fertilizer active agent are being applied to irrigated lands and approximately 6 tons of organic fertilizer, the problem of a self-supporting humus balance must be solved through the cultivation of greenmanure crops. This would make it possible to increase the KAKhOP volumes.

Author's supervision exercised by stations for the use of chemical processes over the carrying out of planning and estimates documentation for KAKhOP reveals many shortcomings: low quality agrochemical work, violations of the recommended dosages and also of the application schedules. A lack of coordination between the farms and the agrochemical service often develops during the introduction of KAKhOP into operations on a large scale: the fields are not singled out in a timely manner, the schedules for plowing the fertilizer under are not being maintained or the agrotechnical and agrochemical operations are not being combined correctly.

In actual practice, the requirement for employing a high level of completeness is not being carried out fully. At times the herbicides or the chemical and

agrobiological operations and even the microelements are being overlooked. The microelement problem is becoming more acute. A lack of these microelements during high fertilizer dosages lowers the effectiveness of the KAKhOP.

All-round agrochemical cultivation opens up broad opportunities also for introducing leading forms for labor organization and wages based upon the final result.

Thus, in Naro-Fominskiy Rayon in Moscow Oblast, an additional payment was computed for the members of an all-round brigade of Selkhozkhimiya, charged with providing services for the Voskhod Sovkhoz, based upon the farm's annual production indicators. In accordance with the 1983 results, the incentive for output amounted to 9.6 kopecks per ruble earned, in 1984 -- 19.6 kopecks, or approximately 1,200 rubles per individual. This was determined to a large degree by the successes realized by the farm during 1983-1984.

An experiment carried out by the Istrinskiy Rayon Association of Selkhozkhimiya in Moscow Oblast turned out to be positive in nature. Here, prior to obtaining the final result, the farm paid the association for KAKhOP work at 80 percent of its value. The remaining 20 percent was paid at the end of the year and, in addition, a portion of the net income obtained from the KAKhOP fields was used for forming a bonus fund.

A statute has been developed for a collective contract for use in conjunction with KAKhOP. It is presently undergoing a production check in the Udmurt ASSR and in Tambov, Voronezh and a number of other oblasts.

KAKhOP -- although it is an effective trend for the intensification of farming, the potential possibilities of this new method are still not being utilized adequately.

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## TILLING AND CROPPING TECHNOLOGY

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### CHEMICAL SUPPORT FOR INTENSIVE GRAIN CROP TECHNOLOGY

Moscow KHIMIYA V-SELSKOM KHOZYAYSTVE in Russian No 1 Jan 86 pp 4-8

Article by A.P. Osadchuk and V.A. Svetov: "Reserves for Intensive Technologies"/

Text An increase in grain production and improvements in its quality constitute a key task of the Food Program for the USSR. Farming intensification represents the principal path to be followed for solving this task. Thus it is that the intensive technologies for growing grain crops are being employed on the kolkhoz and sovkhoz fields at an increasing rate.

In 1984, intensive methods were employed for cultivating winter wheat on only 15,000 hectares in Stavropol and Krasnodar krais and in Tambov, Lipetsk and Moscow oblasts. The initial production tests revealed that high final results could be achieved providing all elements of the recommended technology were observed in a strict manner. In Krasnodar Kray, six farms obtained an average of 54.3 quintals of grain per hectare from an area of 774 hectares, or 9.6 more quintals per hectare than were obtained from conventional sowings. On three farms in Stavropol Kray, the winter wheat yield fluctuated from 42 to 55 quintals per hectare, thus exceeding the yields from the remaining fields by 10-20 quintals per hectare. At the Komsomolets Sovkhoz in Tambovskiy Rayon, the winter wheat yield obtained using the intensive technology amounted to 43.8 quintals per hectare.

In behalf of the 1985 harvest, grain crops were sown on 10.8 million hectares in the RSFSR using the intensive technologies. According to preliminary data, the average increase in grain yield obtained from these sowings (compared to other sowings) amounted to 5.5 quintals per hectare. Moreover, the average yield for winter crops (wheat and rye) sown using an intensive technology with a permanent track amounted to 28 quintals per hectare and following clean fallow -- 21.9 quintals per hectare. The spring wheat yield following clean fallow equalled 18.4 quintals per hectare and for a second crop grown following fallow -- 17.1 quintals per hectare.

On the whole however, the results achieved turned out to be lower than those thought possible. On the one hand, a number of areas (Stavropol and Krasnodar krais) were affected by extremely unfavorable conditions for the wintering and spring vegetation of the winter crops; in the central chernozem oblasts and the lower Volga region, spring drought conditions played a negative role. On the

other hand, the yield levels for intensive sowings reflect insufficient readiness on the part of many kolkhozes and sovkhoses to convert over to using the new technologies for cultivating grain crops and weak preparation by the leaders and specialists of some farms for introducing them into operations.

In those areas where the technologies were maintained and where the overall culture of farming on the farms was at a high level, a worthy return was realized from the labor and material expenditures invested in the work. At the Orlovskiy Kolkhoz in Kirovskiy Rayon in Stavropol Kray, 52.6 quintals of winter wheat grain were obtained per hectare from an area of 400 hectares, or 15.4 more quintals per hectare than that obtained from conventional sowings. The Rassvet Kolkhoz in Mikhaylovskiy Rayon in Volgograd Oblast obtained 47 quintals of winter wheat grain per hectare from an area of 1,000 hectares, 10 quintals more per hectare than that obtained from other fields. The Vpered Sovkhoz in the Altay Kray obtained 30 quintals of spring wheat grain per hectare from an area of 1,200 hectares (an increase of 15 quintals per hectare). The Kolkhoz imeni Chapayev in Dobrinskiy Rayon in Lipetsk Oblast obtained 54 quintals of winter wheat grain per hectare from an area of 130 hectares, at a time when the prevailing technology on the farm was producing only 28 quintals per hectare.

The potential of the intensive technologies has been confirmed in all areas and their use has had a positive effect on the quality of bread wheat grain. As of 24 October 1985, 52 percent of the wheat turned over to the state was classified as being strong, valuable or durum and the procurement volumes for high quality grain had increased by a factor of 1.3 compared to 1984.

When giving proper credit to the work carried out in connection with the introduction of intensive technologies, mention should also be made of the future which lies in store for them. In behalf of the 1986 crop, the areas for the cultivation of grain crops using intensive technologies in the RSFSR will be increased to 16.7 million hectares and with an even greater increase to take place prior to 1990. Thus, for the purpose of improving the work, importance is presently being attached to concentrating attention on the mistakes and shortcomings tolerated during 1985 and to preventing them from occurring again in future years.

First and foremost, we have advanced the problem of personnel training. The RSFSR MSKh /Ministry of Agriculture/ has attached special importance to training in view of the fact that the intensive technologies for cultivating grain crops were employed on a broad scale and for the very first time in a majority of oblasts, krays and autonomous republics in behalf of the 1985 harvest. Thus training-methodological seminars were conducted with the leaders of local agricultural organs and scientific institutes and course training was organized for the farm leaders, specialists and machine operators. In all, more than 210,000 individuals underwent systematic training. Jointly with the scientific institutes, the ministry developed, published on a mass basis and supplied the kolkhozes and sovkhoses with the necessary normative-methodological literature. Specialists attached to the central staff carried out systematic temporary duty assignments for the purpose of furnishing assistance to local agricultural organs and farm leaders and specialists in connection with the introduction of the new technologies into operations. Nevertheless, not all of



the farm leaders, specialists or machine operators have mastered the requirements for the new technologies in full volume or at the proper level. In a number of instances, the specialists were unable to reorganize their work and instead sought simplifications. Hence mistakes occurred and deviations from the recommendations were noted. Failure on the part of just one element of the technology lowered noticeably the effectiveness of all of the remaining work. For example, when carrying out the entire complex of operations for the technology, the elimination of one step could result in lodging of the crops and thereafter -- in poor grain formation.

These circumstances were not always taken into account during the mass introduction of intensive technologies into operations on the kolkhoz and sovkhoz fields. At the Kolkhoz imeni Kirov in Arskiy Rayon in the Tatar ASSR, different results were obtained from two co-located fields that were sown during the same periods using seed for the Chulpan rye variety and with essentially the same agrotechnical practices being employed: 49.4 quintals of grain per hectare were obtained from the one field and from the other -- 27.7 quintals per hectare. The difference derived from the fact that a permanent track was made on the first field and this made it possible to carry out split nitrogen top dressings (together with pesticide applications) and also treatments with retardants. On the second field there were no tracks and the mentioned work could not be carried out; the crops lodged and diseases appeared, as a result of which a sharp reduction in yield was experienced.

At the Rossiya Kolkhoz in Novoaleksandrovskiy Rayon in Stavropol Kray, 34.8 quintals of grain per hectare were obtained instead of the planned amount of 50 quintals from 2,000 hectares of intensive sowings of winter wheat. There were several reasons for this. In the 4th Brigade, 490 hectares were sown following stubble predecessor crop arrangements and the yield was 28.7 quintals per hectare. At the same time, 40.7 quintals of grain were obtained per hectare from 470 hectares sown following peas.

In accordance with the agrochemical passport for the field, the sowing should have been carried out during the period from 5 to 10 October. However, the rain which commenced on 12 October delayed it and, as a result, the sowing work continued up to 20 October. Prior to the end of the autumn period of vegetation the plants had sustained a loss of 100-150° in positive temperatures and thus they entered the winter during the phase of 3-4 leaves. Complex fertilizers with the N:P:K ratio of 1:1.2:0.4 were applied as the principal treatment. The autumn dosage of nitrogen applied (105 kg per hectare) was clearly excessive; it should not have exceeded 50-60 kg per hectare. When the sowing was carried out in rows, fertilizer was generally not applied. All of this led to a thinness in the plant stands: whereas in the autumn there were 350-400 plants per square meter, in the spring there were only 250-300. Three non-prophylactic treatments were employed for combating diseases and at a time when the diseases (powdery mildew, septoria spot and partially rust) had already damaged all of the plants. The result of all this -- a shortfall in the potential yield.

If a discussion concerns the use of mineral fertilizers for intensive sowings, mention is often made not only of a lack of balance in the applications but also of incorrectly determined dosages. The computations for fertilizer

applications must take into account the planned yields, the results of soil analyses and other factors. Each field must be supplied with the required dosage of fertilizer, in the proper ratio and during the best period. This is an indispensable condition for obtaining high yields. And certainly, in solving this task a dominating role will be played by the farm agronomists and agrochemists. Only they can serve as true technologists for crop cultivation on each specific field. If the data for an agrochemical inspection is too old to be taken into account, soil samples should be taken and analyzed with the help of a station for the use of chemical processes. Especially frequent control should be exercised over the nitrogen content in the soil, since this indicator varies greatly throughout the season.

Some specialists are of the opinion that high dosages of mineral fertilizer must be employed in order to implement an intensive technology. According to the principle that more is better. High crop yields require appropriate dosages but not excessive ones. Extremely high dosages, especially when the applications are not balanced, lead not to an increase but rather to a shortfall in yield. This applies in particular to nitrogen fertilizers. For example, on leached chernozem soils in the Central Chernozem region, according to 54 tests generalized by VNIPTIKhIM /All-Union Scientific-Research and Planning Technological Institute for the Use of Chemical Processes in Agriculture/, an increase in a nitrogen dosage from 120 to 150 kg per hectare, against a background of a constant amount of phosphorus and potassium ( $P_{60}K_{60}$ ) did not result in an increase in the winter wheat yield. An excessive application of mineral fertilizer can result in contamination of the surrounding environment and this must be taken into account.

Success in the use of intensive technologies is dependent not only upon the agricultural workers. Many problems must be solved by the industrial ministries and enterprises engaged in the production of mineral fertilizers and pesticides. In accordance with the plan for 1985, complex fertilizers constitute 74.5 percent of the assortment of phosphorus fertilizer deliveries in the RSFSR. Moreover, the plants are distributed in a manner such that in some oblasts only complex fertilizers are supplied for the most part. For example, in Voronezh Oblast phosphorus fertilizers are imported from the Rossosh Chemical Plant in the form of azophoska (complete fertilizer). This fertilizer contains nutrients in the ratio 2:1:1. In the process, an application of the required amount of phosphorus is often accompanied by an excessive amount of nitrogen.

The time is obviously at hand for examining the assortment of mineral fertilizers being produced and for producing more phosphorus fertilizers for applying to fallow fields.

Agriculture is not being supplied with adequate quantities of mineral fertilizer and this is creating complications with regard to the availability of such fertilizer for use with the intensive technologies. The expression "unrealistic suppliers" is being used extensively. Their number includes: the Cherepovets ATZ /Nitrogen Fertilizer Plant/, Dorogobuzh ZAU and the Rossosh and Meleuz chemical plants. During 9 months of 1985, agriculture was undersupplied in the amount of 586,000 tons of mineral fertilizer (in a computation for active agent), including 201,000 tons of  $P_2O_5$  and 246,000 tons

of  $K_2O$ . The Rossosh Chemical Plant failed to ship 52,000 tons of phosphorus containing mineral fertilizer, the Samarkand plant -- 26,000 and the Novgorod Azot PO -- 23,000 tons. And indeed this is not simply an undershipment of mineral fertilizer, but rather it is also considered to be one of the reasons for a disruption in the NPK ratio. This is also the cause of constant reassignments of consumers to new suppliers, a situation which creates systematic tension in the timely bartering of kolkhoz and sovkhoz funds.

The intensive technologies require a high overall culture of farming and they must be coordinated very closely with the development of scientifically sound farming systems. Here we have in mind the need for combining such factors as good predecessor crop arrangements (and in the steppe and forest-steppe regions this includes fallow, perennial grasses and pulse crops), the selection of highly fertile soil and choosing fields which are most free of weeds, pests and pathogens.

The intensive technologies must be coordinated well with the agrotechnical requirements developed by local scientific institutes and intensive sowings should be carried out in well cultivated soil. The varieties selected should have a high potential in terms of both yield and the technological qualities of the grain. The seed must obviously conform to the highest sowing and varietal requirements and it should be sterilized prior to sowing. And only after the preliminary conditions have been created can other intensification factors be considered: the application of raised (taking into account the nutrient supplies in the soil and the planned yields) dosages of mineral fertilizer with a correct nutrient ratio, the split utilization of nitrogen fertilizers and the use of plant protective agents, retardants, biostimulators, microelements and so forth.

KAKhOP /kompleksnoye agrokhimicheskoye okul'turivaniye poley; all-round agrochemical cultivation of fields/ -- is a most promising form for the preparation of areas. Its effectiveness is well apparent based upon the example of farms in Mamadyshskiy Rayon in the Tatar ASSR. Here, at the Chulpan Kolkhoz, 36.5 quintals of winter rye grain per hectare were obtained from an area of 381 hectares on which intensive technologies were employed but not KAKhOP and with KAKhOP -- 40.1 quintals per hectare. The winter rye yields at the Kzyl Flag Kolkhoz amounted to 33 and 43 quintals per hectare respectively. Other farms in this rayon realized similar differences from the use of KAKhOP.

In those instances where it is impossible to utilize KAKhOP fully when planting grain crops following various predecessor crop arrangements, the soil alkalinity or acidity should at least be removed and other possible types of work carried out prior to sowing. Fields having an average acid reaction in the soil medium should not be withdrawn from use for the sowing of grain crops, with use being made of intensive technologies, unless liming work has been carried out on them.

In connection with the feasibility of preliminary agrochemical preparation of fields, another consideration and one which has been a source for argument should be expressed. Here we have in mind the introduction of Bashkir, Altay and other plowshare modifications for grain sowing machines for intra-soil applications of phosphorus fertilizers. Phosphorus moves only weakly from the

area of application (on the order of 4-5 centimeters) and in the majority of soils a deficit of mobile phosphorus is noted throughout the entire arable and sub-soil layers and thus it would seem that there is no need to fear the use of inclined belt placement of phosphorus fertilizer. Thus work involving applications of fertilizer is being carried out slowly. In 1985, this method for applying mineral fertilizers was employed on 450,000 hectares only in the Bashkir ASSR, in Saratov Oblast -- on 250,000 hectares, in Orenburg Oblast -- on 210,000 hectares and in the remaining regions this work was either not carried out whatsoever or carried out on small areas.

The chief reason lies in the fact that in many instances preliminary agro-chemical preparation of the fields is not being carried out. For example, early in the spring phosphorus fertilizer could be applied to clean fallow using the inclined-belt placement method. This would not result in a drying out of the soil, which is possible when phosphorus mineral fertilizer is applied prior to sowing.

Tests conducted at scientific institutes on the use of special plowshares have produced positive results. Thus, during tests carried out at the Elita Povolzhya NPO /scientific production association/, a yield of 35.7 quintals per hectare of Saratovskaya 46 spring wheat was obtained when fertilizer was applied using a non-equipped SZS-2.1 sowing machine and when use was made of plowshares designed by the Bashkir SKhI /agricultural institute/ -- 36.5 quintals per hectare. During tests carried out at the Kuybyshev NIISKh /scientific research institute of agriculture/, a fertilizer application carried out in behalf of millet using these same plowshares produced an increase in grain yield of 1.3 quintals per hectare. The increase in spring wheat at the Nizhne-Volzhskiy NIISKh was in excess of 2.5 quintals per hectare and at the Orenburg NIISKh, with the fertilizer application depth using a plowshare being less than 20 centimeters, the increase amounted to 3.5 quintals per hectare (the fertilizer was placed in the damp root-inhabiting layer).

The return from intensive technologies is dependent upon observance of the agrotechnical requirements. The Kolkhoz imeni Lenin in Korenovskiy Rayon in Krasnodar Kray can be cited by way of an example. Here winter wheat was sown using an intensive technology on an area of 3,426 hectares. Roughly 3,000 hectares were maintained and harvested, but from each hectare maintained only 36.6 quintals of grain were obtained instead of the 50 called for in the plan.

One reason for this -- late sowing periods as a result of delays in preparing the soil. Prior to the commencement of sowing, 2,660 hectares (77 percent) were prepared and on 766 hectares the preparation work was carried out during the sowing process. Naturally, the sowing periods were dragged out -- from 30 September to 10 November. Following the permissible periods, 551 hectares (16 percent) were sown. A considerable portion of the winter crops entered the winter during the phase of 1-2 leaves. The low temperatures during the winter months and in early March caused the destruction of a portion of the plants and the crops turned out to be sparse and weak and unable to endure the dry weather in May. And despite the fact that the recommended dosages of fertilizer were applied on the farm and protective measures undertaken, the winter wheat yield turned out to be 13.4 quintals per hectare less than the planned level.

The deficit in the carry-over fund for seed for winter grain crops, for the sowing period and especially in the nonchernozem zone, has truly become a problem. The sowing of freshly harvested seed does not definitely ensure a proper return.

The most complicated problem with regard to realizing the potential of an intensive technology is that of protecting the crops against weeds, pests and especially diseases. This technology assumes the use mainly of systemic preparations, that is, substances which penetrate the tissue of cultivated plants, after which they become toxic to pests and the causative agents of diseases. Moreover, distinct from contact preparations, systemic preparations remain active for a longer period of time and their action is considerably less dependent upon meteorological factors. However, the farms lacked sufficient quantities of systemic preparations for the 1985 harvest.

The use of a number of new preparations requires thorough observance of the regulations. For example, the herbicide Avadex (to combat wild oats) must be applied 2-3 centimeters higher than the sowing depth for grain crops and this requires a high level of skill on the part of the users and proper adjustment of the equipment. The herbicide Dialen must not be employed from aircraft without special equipment and this has created difficulties with its use, especially for spring wheat on farms in the Urals and Siberia.

The sowing of grain crops with use being made of the intensive technology and a permanent track is being employed extensively on kolkhoz and sovkhoz fields in the Russian Federation. This is understandable: high quality treatments against diseases and pests and also foliar top dressings can be carried out using only ground equipment. But the existence of tracks confronts industry with many problems, particularly in connection with increasing the clearance for Belarus type tractors, the production of mounted sprayers with existing booms and others.

Mention should be made of one particular problem having to do with the use of retardants. In Voronezh, Kuybyshev and Lipetsk oblasts and in the Tatar ASSR, the treatment of winter wheat seed with the TUR preparation has become a mandatory method. According to observations carried out at the NIISKh for the TsChP /Central Black Earth Belt/, this promotes greater depth for the tillering node (by roughly 1.5 centimeters) and better wintering for the plants. Only in the case of short-stalk varieties is the use of retardants on crops not recommended. The technology for applying growth regulators must be observed in an efficient manner. A delay in carrying out the treatments will not only lower their effectiveness but in addition it will at times produce negative results as well.

Some leaders and specialists in certain oblasts are failing to attach proper value to the role played by retardants. They are not being employed by farms in Orel, Ryazan, Chelyabinsk, Tula and Novosibirsk oblasts or in Krasnoyarsk Kray. Naturally, the growing of grain crops following clean fallow, with applications of high dosages of mineral fertilizer, including nitrogen fertilizer, results in considerable lodging of the plants, a shortfall in yield and in a reduction in the quality of the grain.

In 1984 and 1985, the incrustation of grain crop seed was carried out on an extensive scale in the Tatar ASSR. Simultaneously the seed was treated with chlor-choline-chloride and microelements. This experience accumulated in the Tatar ASSR is deserving of broad dissemination.

High yields cannot be obtained if the work is not carried out with microelements. It is sufficient to state that in the Russian Federation 96 percent of the arable soils studied lacked zinc, 93 percent -- cobalt, 75 percent -- molybdenum, 42 percent -- boron, 40 -- manganese and 29 percent -- copper.

Scientific support must be increased in order to raise the effectiveness of the intensive technologies. Up until recently, there were no clear recommendations with regard to the feasibility of using potassium fertilizers in the Volga region. Moreover, the agricultural organs in Volgograd Oblast have repeatedly declined to obtain potassium fertilizers for the intensive technologies.

There are still no reliable indicators of soil diagnostics for forecasting the effects of nitrogen fertilizers. Although such a method has been developed and introduced into operations in western and eastern Siberia, the southern Urals and the Volga region, it is only being worked out at the present time for the central chernozem region and as yet no scientific recommendations have been made regarding this problem for the north Caucasus.

In the Russian Federation, the areas on which grain crops are being cultivated using intensive technologies are increasing with each passing year. Once the mentioned shortcomings have been eliminated, the assigned tasks for obtaining the planned yields of high quality grain must be carried out.

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